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February 5, 2014

Mr. Kenneth Bardo - LU-9J
U.S. EPA Region V
Corrective Action Section
77 West Jackson Boulevard
Chicago, IL 60604-3507

Re: Chlorobenzene Process Area (CPA) Groundwater Monitoring Program
4th Quarter 2013 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL

Dear Mr. Bardo:

Enclosed please find the 4th Quarter 2013 Data Report for the Chlorobenzene Process Area (CPA) Groundwater Monitoring Program at Solutia Inc.'s W. G. Krummrich Plant, Sauget, IL. The next semiannual monitoring will be conducted 2nd quarter 2014.

If you have any questions or comments regarding this report, please contact me at (314) 674-3312 or gmrina@solutia.com

Sincerely,

Gerald M. Rinaldi
Manager, Remediation Services

Enclosure

cc: Distribution List

DISTRIBUTION LIST

**Chlorobenzene Process Area (CPA) Groundwater Monitoring Program
4th Quarter 2013 Data Report
Solutia Inc., W. G. Krummrich Plant, Sauget, IL**

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4TH QUARTER 2013
DATA REPORT

CHLOROBENZENE PROCESS
AREA GROUNDWATER
MONITORING PROGRAM

SOLUTIA INC.
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

Prepared for

Solutia Inc.
575 Maryville Centre Drive
St. Louis, Missouri 63141

January 2014



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1.0 INTRODUCTION

This report presents the results of the 4th Quarter 2013 (4Q13) sampling event performed at the Solutia Inc. (Solutia) W.G. Krummrich (WGK) Facility located in Sauget, Illinois (Site). This sampling event was conducted in accordance with procedures outlined in the Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009). This work was completed to evaluate the effectiveness of remedial activities in the vicinity of the former Chlorobenzene Process Area (CPA) at WGK. The Site location is presented in **Figure 1**.

Groundwater Sampling Location and Frequency – Initial sampling of the CPA wells occurred 4Q11 and subsequent sampling events have occurred in 4Q12, 2Q13, and 4Q13. During each groundwater sampling event, groundwater samples were collected from monitoring wells CPA-A-SHU, -MHU and -DHU, CPA-B-SHU, -MHU and -DHU, CPA-C-SHU, -MHU and -DHU, and CPA-D-SHU, -MHU and -DHU, all located at WGK in Sauget, Illinois. Monitoring well locations are presented in **Figure 2**.

Groundwater Sampling Parameters – During the 4Q13 groundwater sampling event, groundwater samples were analyzed for benzene, chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4-dichlorobenzene using USEPA Method 8260B.

Samples for analysis of Monitored Natural Attenuation (MNA) parameters were also collected from the twelve CPA wells. Evaluation of the types of active natural attenuation processes at the site is based on the following key geochemical parameters:

- Electron Donors: Organic Carbon (Total and Dissolved)
- Electron Acceptors: Iron (Total and Dissolved)
Manganese (Total and Dissolved)
Nitrate
Sulfate
- Biodegradation Byproducts: Carbon Dioxide
Chloride
Methane
- Biodegradation Indicators: Alkalinity

Direct demonstration of the occurrence of biodegradation processes is completed utilizing Microbial Insights (www.microbe.com) chlorobenzene baited Bio-Trap[®] samplers for Phospholipid Fatty Acid (PLFA) and Stable Isotope Probing (SIP) analyses.

2.0 FIELD PROCEDURES

URS Corporation (URS) conducted 4Q13 sampling activities between November 12 and 15, 2013. Activities were completed in accordance with procedures outlined in the Revised LTMP

Work Plan, including the collection of appropriate quality assurance and quality control (QA/QC) samples.

Groundwater Level Measurements – URS personnel used an electronic oil/water interface probe to measure depth to static groundwater levels and if present, the thickness of non-aqueous phase liquid (NAPL) to 0.01 feet. As part of the LTMP, depth to groundwater measurements were collected on October 30-31, 2013 from accessible existing WGK monitoring wells (i.e., BSA-, CPA-, GM-, K- , PS-MW- and PMA-series) and piezometer clusters (installed for the Sauget Area 2 RI/FS and WGK CA-750 Environmental Indicator projects) specified in the Revised LTMP Work Plan (Solutia 2009) (**Figure 3**). This group of wells and piezometers includes those that compose the CPA Program. NAPL was not detected within any of the gauged monitoring wells.

Well gauging information for the 4Q13 CPA sampling event is presented in **Table 1**. As the middle and deep hydrogeologic units are the primary migration pathway for constituents present in groundwater at, and in the vicinity of, the WGK Facility, a groundwater potentiometric surface map based on water level data from wells screened in the Middle Hydrogeologic Unit (MHU) and Deep Hydrogeologic Unit (DHU) is presented as **Figure 3**.

Groundwater Sampling – Low-flow sampling techniques were used for groundwater sample collection. At each monitoring well, disposable, low-density polyethylene tubing was attached to a submersible pump, which was then lowered into the well to the middle of the screened interval. Monitoring wells were purged at a rate of 300 to 400 mL/minute to minimize drawdown. If significant drawdown occurred, flow rates were reduced.

Drawdown was measured periodically throughout purging to ensure that it did not exceed 25% of the distance between the pump intake and the top of the screen. Once the flow rate and drawdown were stable, field measurements were collected approximately every two to four minutes.

Purging of a well was considered complete when the following water quality parameters remained stable over three consecutive flow-through cell volumes:

Parameter	Stabilization Guidelines
Dissolved Oxygen (DO)	+/- 10% or +/-0.2 mg/L, whichever is greatest
Oxidation-Reduction Potential (ORP)	+/- 20 mV
pH	+/- 0.2 units
Specific Conductivity	+/- 3%

Sampling commenced upon completion of purging. Prior to sample collection, the flow-through cell was bypassed to allow for collection of uncompromised groundwater. Samples were collected at a flow rate less than or equal to the rate at which stabilization was achieved.

Sample containers were filled based on laboratory analysis to be performed, in the following order:

- Volatile Organic Compounds (VOCs)
- Gas Sensitive Parameters (e.g., methane, carbon dioxide)
- General Chemistry (e.g., alkalinity, chloride, total and dissolved iron, total and dissolved manganese, nitrate, sulfate, and total and dissolved organic carbon)
- Field Parameters (i.e., dissolved oxygen, ferrous iron, and oxidation-reduction potential).

Samples collected for ferrous iron, dissolved iron and dissolved manganese analysis were filtered in the field using in-line 0.2 micron disposable filters, represented by a notation of “F (0.2)” in the sample nomenclature.

Quality assurance/quality control (QA/QC) samples consisting of analytical duplicates (AD) and equipment blanks (EB) were collected at a rate of 10% and matrix spike/matrix spike duplicates (MS/MSD) were collected at a rate of 5%. In addition, trip blanks accompanied each shipment containing samples for VOC analysis.

Each investigative or QC sample was labeled immediately following collection. Each sample identification number consisted of the following nomenclature “CPA-MW#-MMYY-QAC” where:

- **Well ID** includes "CPA-" followed by #-#HU, denoting monitoring well location and hydrogeologic unit
- **MMYY** – Month and year of sampling quarter, e.g.: November (4th quarter) 2013 (1113)
- **QAC** denotes QA/QC sample
 - **AD** – analytical duplicate
 - **EB** – equipment blank
 - **MS** or **MSD** – Matrix Spike or Matrix Spike Duplicate

Upon collection and labeling, sample containers were immediately placed inside an iced cooler, packed in such a way as to help prevent breakage and maintain inside temperature at or below approximately 4°C. Field personnel recorded the project identification and number, sample description/location, required analysis, date and time of sample collection, type and matrix of sample, number of sample containers, preservative used (if applicable), analysis requested/comments, and sampler signature/date/time, with permanent ink on the chain-of-custody (COC). Prior to shipment, coolers were sealed between the lid and sides of the cooler with a custody seal, and then shipped to TestAmerica in Savannah, Georgia by means of an overnight delivery service. Field sampling data sheets are included in **Appendix A**, and copies of COCs are included in **Appendix B**.

Field personnel and equipment were decontaminated according to procedures specified in the Revised LTMP Work Plan to ensure the health and safety of those present, maintain sample

integrity, and minimize movement of contamination between the work area and off-site locations. Equipment used on-site was decontaminated prior to beginning work, between sampling locations and/or uses, and prior to demobilizing from the site. Non-disposable purging and sampling equipment was decontaminated between each sample acquisition by washing with a Liquinox[®] or equivalent detergent wash and a distilled water rinse. Personnel and small equipment decontamination was performed at the sample locations. Disposable sampling equipment, such as gloves were collected and bagged on a daily basis and managed in accordance with Solutia procedures. Purge water was containerized and handled per Solutia procedures.

Biodegradation Evaluation Sampling - Bio-Trap[®] samplers baited with chlorobenzene and provided by Microbial Insights, Inc. (Rockford, TN), were utilized in the CPA wells to provide information regarding biodegradation potential of the DHU. Bio-Trap[®] samplers are passive sampling tools which, over time, collect microbes across a membrane that serves as the sampling matrix. Because they are baited with ¹³C labeled chlorobenzene, the Bio-Traps[®] are also used to measure the degradation of chlorobenzene utilizing a method also known as stable isotope probing (SIP).

On, September 30, 2013, URS field personnel deployed chlorobenzene baited Bio-Trap[®] samplers in each of the 4 DHU CPA wells for PLFA and SIP analysis. The Bio-Trap[®] samplers were attached to a stainless steel line secured to the well cap and lowered to the middle of the well screen.

On October 30, 2013, the Bio-Trap[®] samplers were retrieved from the wells, sealed in laboratory supplied bags, labeled with the proper well identification and placed in an iced sample cooler with a signed COC. Sealed sample coolers were sent to Microbial Insights, Inc. for analysis.

3.0 LABORATORY PROCEDURES

Samples were analyzed by TestAmerica for VOCs and MNA parameters, using the following methodologies:

- VOCs, via USEPA SW-846 Method 8260B
- MNA parameters: alkalinity (310.1), carbon dioxide (310.1), chloride (325.2), total and dissolved iron (6010B), total and dissolved manganese (6010B), dissolved gases (RSK 175), nitrate (353.2), sulfate (375.4), and total and dissolved organic carbon (415.1).

Laboratory results were provided in electronic and hard copy formats.

4.0 QUALITY ASSURANCE

Analytical data were reviewed for quality and completeness, as described in the Revised Long Term Monitoring Program (LTMP) Work Plan (Solutia 2009). Data qualifiers were added, as appropriate, and are included on the data tables and the laboratory result pages. The Quality Assurance report is included as **Appendix C**. The laboratory report along with data review are included in **Appendix D**.

A total of 16 groundwater samples (twelve investigative samples, two field duplicates, and one MS/MSD pair) were prepared and analyzed by TestAmerica Savannah for combinations of VOCs, dissolved gases, alkalinity, chloride, nitrate, sulfate, total and dissolved metals, and total and dissolved organic carbon. Additionally, two equipment blanks were collected and analyzed by TestAmerica. In addition, four trip blanks were included in the coolers that contained samples for VOC analysis and were analyzed for VOCs. The results for the various analyses were submitted as four sample delivery groups, (SDG)s KPS102, KPS103, KPS104, and KPS105. The samples contained in these SDGs are listed below:

KPS102	
CPA-A-SHU-1113	4Q13 CPA Trip Blank
KPS103	
CPA-A-MHU-1113	CPA-B-MHU-1113-EB
CPA-A-DHU-1113	CPA-B-DHU-1113
CPA-B-SHU-1113	4Q13 Trip Blank #2
CPA-B-MHU-1113	
KPS104	
CPA-C-SHU-1113	CPA-C-DHU-1113
CPA-C-MHU-1113	CPA-C-DHU-1113-AD
CPA-C-MHU-1113-EB	4Q13 CPA Trip Blank #3
KPS105	
CPA-D-SHU-1113	CPA-D-DHU-1113-AD
CPA-D-MHU-1113	4Q13 CPA Trip Blank #4
CPA-D-DHU-1113	

Evaluation of the groundwater analytical data followed procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008), USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Data Review (USEPA 2010), and the Revised Long-Term Monitoring Program Work Plan (Solutia 2009).

Based on the above mentioned criteria, groundwater results reported for the analyses performed were accepted for their intended use. Acceptable levels of accuracy and precision, based on MS/MSD, laboratory control sample (LCS), surrogate and field duplicate data were achieved for this SDG to meet the project objectives. Completeness which is defined to be the

percentage of analytical results which are judged to be valid, including estimated detect/non-detect (**J/UJ**) data was 100 percent, which meets the completeness goal of 95 percent.

5.0 OBSERVATIONS

Groundwater analytical results and MNA results for the 4Q13 CPA sampling event are presented in **Tables 2** and **3**, respectively. Benzene was reported in samples collected from eleven of the twelve wells during this sampling event at concentrations ranging from 120 µg/L (CPA-A-DHU) to 130,000 µg/L (CPA-B-MHU). Total chlorobenzenes (i.e., the sum of chlorobenzene, 1,2-dichlorobenzene, 1,3-dichlorobenzene, and 1,4- dichlorobenzene) were reported in samples collected from all twelve wells during this sampling event. Total chlorobenzenes were detected at concentrations ranging from 210 µg/L (CPA-A-MHU) to 198,000 µg/L (CPA-C-MHU). **Figures 4, 5** and **6** display concentrations of benzene and total chlorobenzenes from the 4Q13 sampling event in the shallow, middle and deep hydrogeologic units, respectively.

Monitored Natural Attenuation – The MNA results for this quarter are presented in **Table 3**. PLFA and SIP laboratory results are included in **Appendix E**. Per the Executive Summary of the SIP Study (**Appendix E**):

- Incorporation of carbon-13 into the microbial biomass and dissolved inorganic carbon (DIC) in upgradient well CPA-A-DHU conclusively demonstrated that chlorobenzene biodegradation and mineralization occurred under the existing site conditions at this sample site.
- Incorporation of carbon-13 into the microbial biomass in downgradient/central well CPA-C-DHU conclusively demonstrated that chlorobenzene biodegradation occurred under the existing site conditions at this sample site.

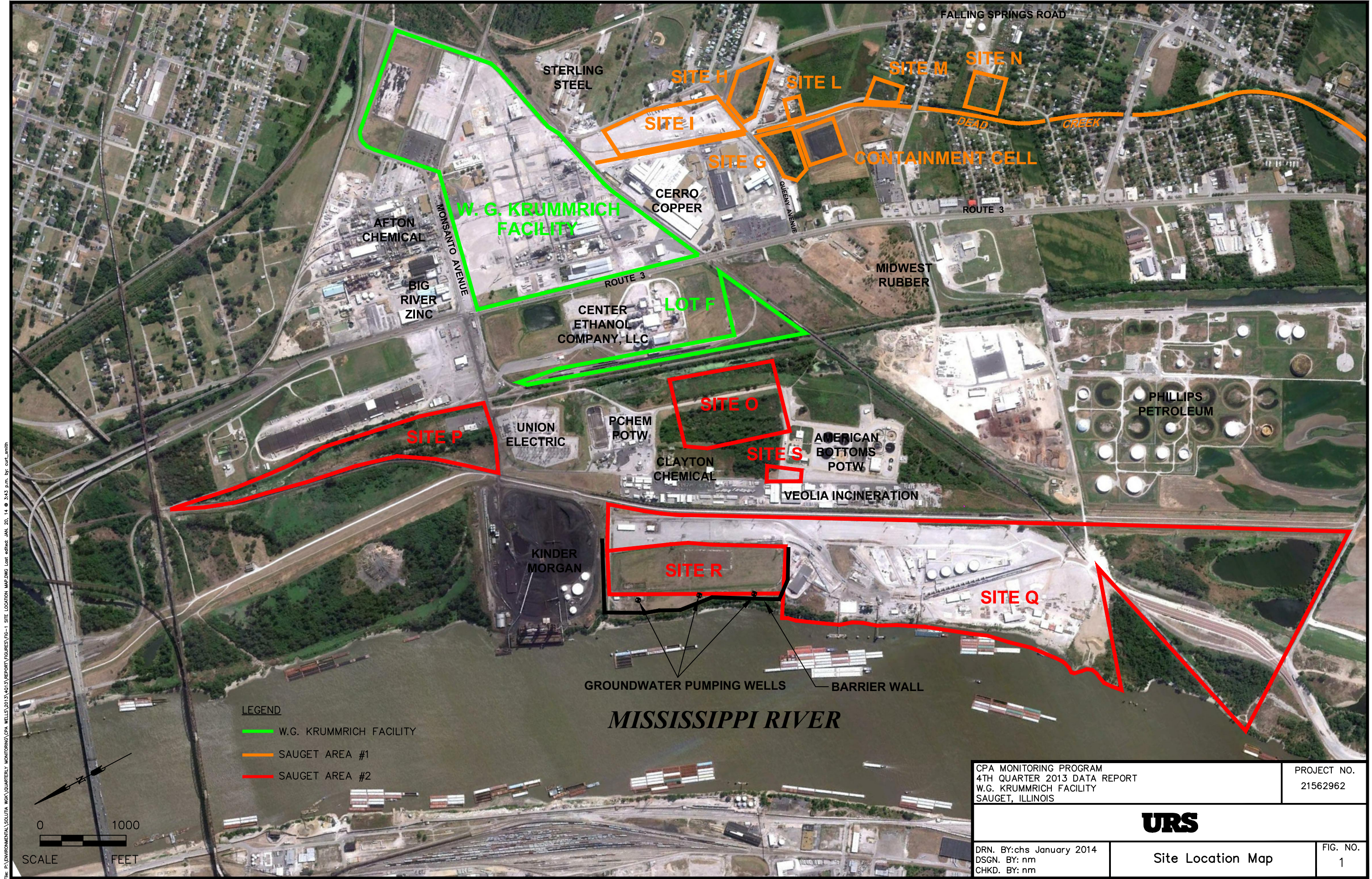
6.0 REFERENCES

Solutia Inc, 2009. Revised Long Term Monitoring Program Work Plan, Solutia Inc., W.G. Krummrich Facility, Sauget, Illinois, May 2009.

USEPA, 2004. Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.

USEPA, 2008. Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review

Figures



F:\ENVIRONMENTAL\SOLUTIONS\WORK\QUARTERLY MONITORING\CPA WELLS\2013\4Q13\REPORT\FIGURES\FIG-1 SITE LOCATION MAP.DWG Last edited: JAN. 20, 14 3:43 p.m. by: curt.smith

- LEGEND
- W.G. KRUMMRICH FACILITY
 - SAUGET AREA #1
 - SAUGET AREA #2



CPA MONITORING PROGRAM 4TH QUARTER 2013 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562962
URS		FIG. NO. 1
DRN. BY:chs January 2014 DSGN. BY:nm CHKD. BY:nm	Site Location Map	



LEGEND

CPA MONITORING WELL LOCATION

NOTES:

- 1. REFER TO TABLE 1 FOR MONITORING WELL CONSTRUCTION INFORMATION.

File: E:\ENVIRONMENTAL\SOLUTIONS\WORK\QUARTERLY MONITORING\CPA WELLS\2013\4Q\13\REPORT\FIGURES\FIG-2 CPA MONITORING PROGRAM.DWG Last edited: JAN. 20. 14 @ 3:43 p.m. by: curt.smith

CPA MONITORING PROGRAM 4TH QUARTER 2013 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562962
URS		
DRN. BY:chs January 2014 DSGN. BY:nm CHKD. BY:nm	CPA Groundwater Monitoring Program Well Locations	FIG. NO. 2

File: P:\ENVIRONMENTAL\SOLUTIONS\WGK\QUARTERLY MONITORING\CPA WELLS\2013\4Q13\REPORT\FIGURES\FIG-3 POTENTIOMETRIC SURFACE MAP.DWG Last edited: 01/23/14 © 09:54 a.m. WC-ST.LOUIS, MO

LEGEND

- LONG-TERM MONITORING WELL USED FOR GROUNDWATER CONTOURING
- OTHER MONITORING WELL USED FOR GROUNDWATER CONTOURING
- PIEZOMETER CLUSTER USED FOR GROUNDWATER CONTOURING
- CPA MONITORING WELL USED FOR GROUNDWATER CONTOURING
- IDOT GROUNDWATER WELL

—392— GROUNDWATER ELEVATION CONTOUR (FT NAVD)

NOTES:

- GROUNDWATER LEVELS WERE MEASURED OCTOBER 30–31, 2013.
- CONTOURS GENERATED PRIMARILY USING SURFER SOFTWARE VERSION 8. SOME INTERPRETATION WAS DONE USING PROFESSIONAL JUDGMENT AND CONTOUR LINES WERE MODIFIED BY HAND. SPECIFICALLY, CONTOURS WITHIN THE WGK PLANT AREA WERE SMOOTHED TO CORRECT FOR THE EFFECT OF VERTICAL HYDRAULIC GRADIENTS GIVEN THE DIFFERING WELL SCREEN DEPTHS.
- THE MISSISSIPPI RIVER STAGE ELEVATION PRESENTED ON THE FIGURE IS AN AVERAGE ELEVATION FOR THE DAYS OF THE GAUGING EVENT. RIVER ELEVATIONS WERE COLLECTED FROM AN ELECTRONIC GAUGE (USGS 07010000) LOCATED AT RIVER MILE 180.0 ON THE EADS BRIDGE.
- LOCATIONS WITH WELLS SCREENED IN BOTH THE MHU AND DHU UTILIZED THE DHU WELL FOR DEVELOPMENT OF THE POTENTIOMETRIC SURFACE MAP.
- LOCATION OF WELL IDOT OW-3 BASED ON FIGURE 4 IN DEWATERING WELL ASSESSMENT FOR THE HIGHWAY DRAINAGE SYSTEM AT FOUR SITES IN THE EAST ST. LOUIS AREA, ILLINOIS (FY00-PHASE 17), ILLINOIS STATE WATER SURVEY, CONTRACT REPORT 2003–08.

IDOT OW-3

ESL-MW-C1
389.95

ESL-MW-A
388.31

ESL-MW-D1
387.43

GWE-5D
387.64

GWE-3D (PIEZ-3-D)
386.84

GWE-2D (PIEZ-2-D)
383.66

GWE-1D (PIEZ-1-D)
381.42

GWE-4D (TRA3-PZADHU)
389.04

PS-MW-6D
387.69

CPA-MW-4D
386.24

PS-MW-10D
384.85

CPA-MW-5D
382.09

BSA-MW-5D
384.13

BSA-MW-4D
384.13

PS-MW-17D
382.28

BSA-MW-3D
387.13

BSA-MW-2D
389.87

CPA-MW-2D
391.59

PMA-MW-6D
392.10

PMA-MW-5M
393.25

PMA-MW-2M
393.90

PMA-MW-1M
393.84

PMA-MW-4D
394.23

CPA-MW-1D
393.88

CPA-MW-3M
394.04

CPA-MW-1M
393.84

PS-MW-1M
395.34

DNAPL-K-1
395.15

DNAPL-K-10
394.53

DNAPL-K-3
394.22

DNAPL-K-4
393.37

DNAPL-K-2
393.73

DNAPL-K-6
393.29

DNAPL-K-7
392.85

DNAPL-K-9
391.91

DNAPL-K-8
391.93

DNAPL-K-11
392.73

DNAPL-K-5
394.15

DNAPL-K-2
393.73

DNAPL-K-6
393.29

DNAPL-K-7
392.85

DNAPL-K-9
391.91

DNAPL-K-8
391.93

DNAPL-K-11
392.73

DNAPL-K-5
394.15

DNAPL-K-2
393.73

DNAPL-K-6
393.29

DNAPL-K-7
392.85

DNAPL-K-9
391.91

DNAPL-K-8
391.93

DNAPL-K-11
392.73

DNAPL-K-5
394.15

DNAPL-K-2
393.73

DNAPL-K-6
393.29

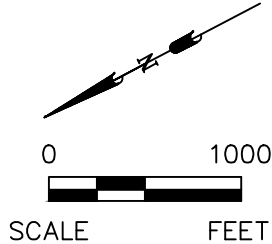
DNAPL-K-7
392.85

DNAPL-K-9
391.91

DNAPL-K-8
391.93

DNAPL-K-11
392.73

MISSISSIPPI RIVER
ELEVATION AT 381.03 FT



CPA MONITORING PROGRAM
4TH QUARTER 2013 DATA REPORT
W.G. KRUMMRICH FACILITY
SAUGET, ILLINOIS

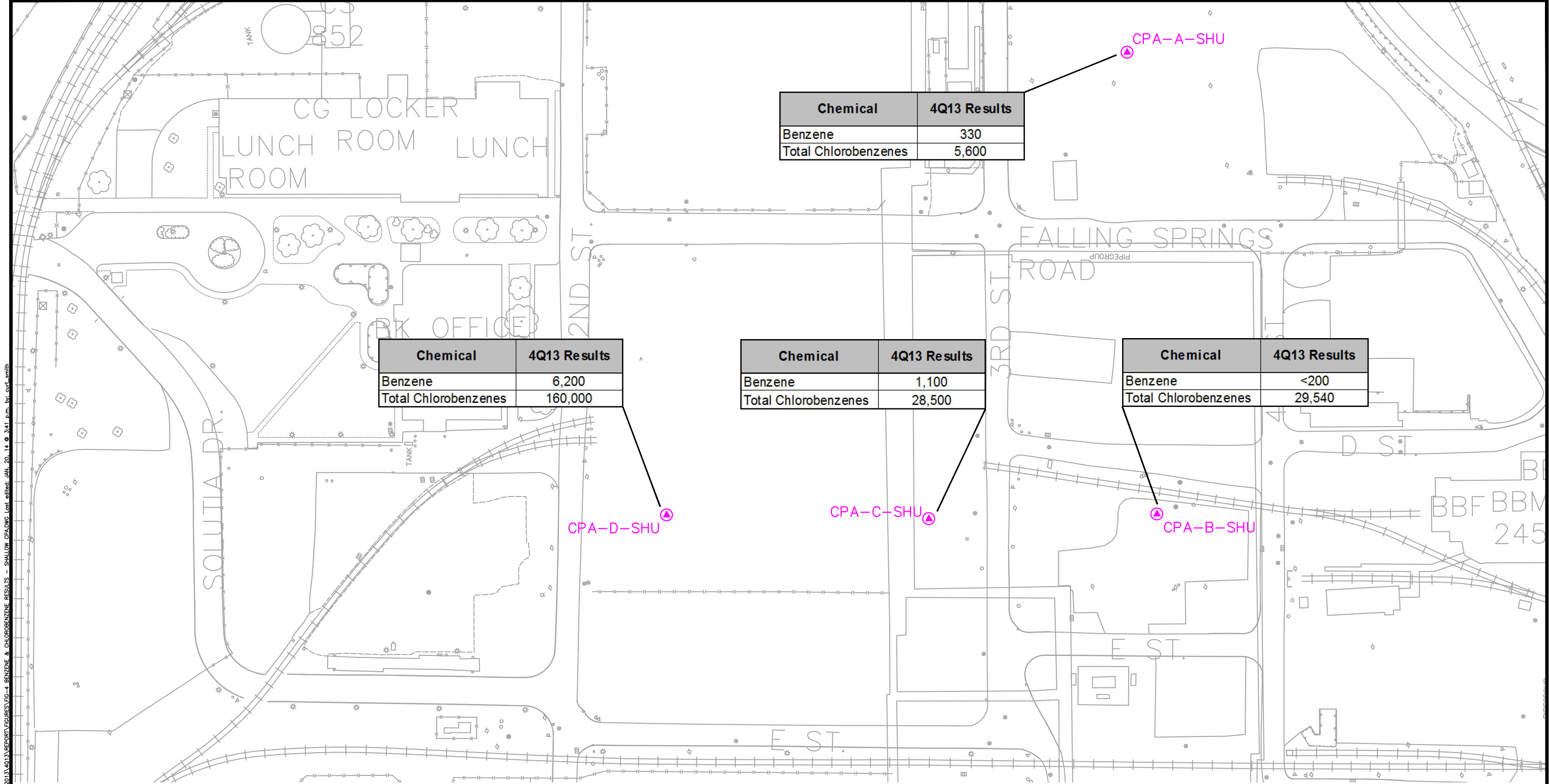
PROJECT NO.
21562962

URS

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CHKD. BY:nm

Potentiometric Surface Map
Middle/Deep Hydrogeologic Unit

FIG. NO.
3



Chemical	4Q13 Results
Benzene	330
Total Chlorobenzenes	5,600

Chemical	4Q13 Results
Benzene	6,200
Total Chlorobenzenes	160,000

Chemical	4Q13 Results
Benzene	1,100
Total Chlorobenzenes	28,500

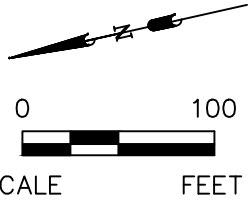
Chemical	4Q13 Results
Benzene	<200
Total Chlorobenzenes	29,540

LEGEND

CPA MONITORING WELL LOCATION

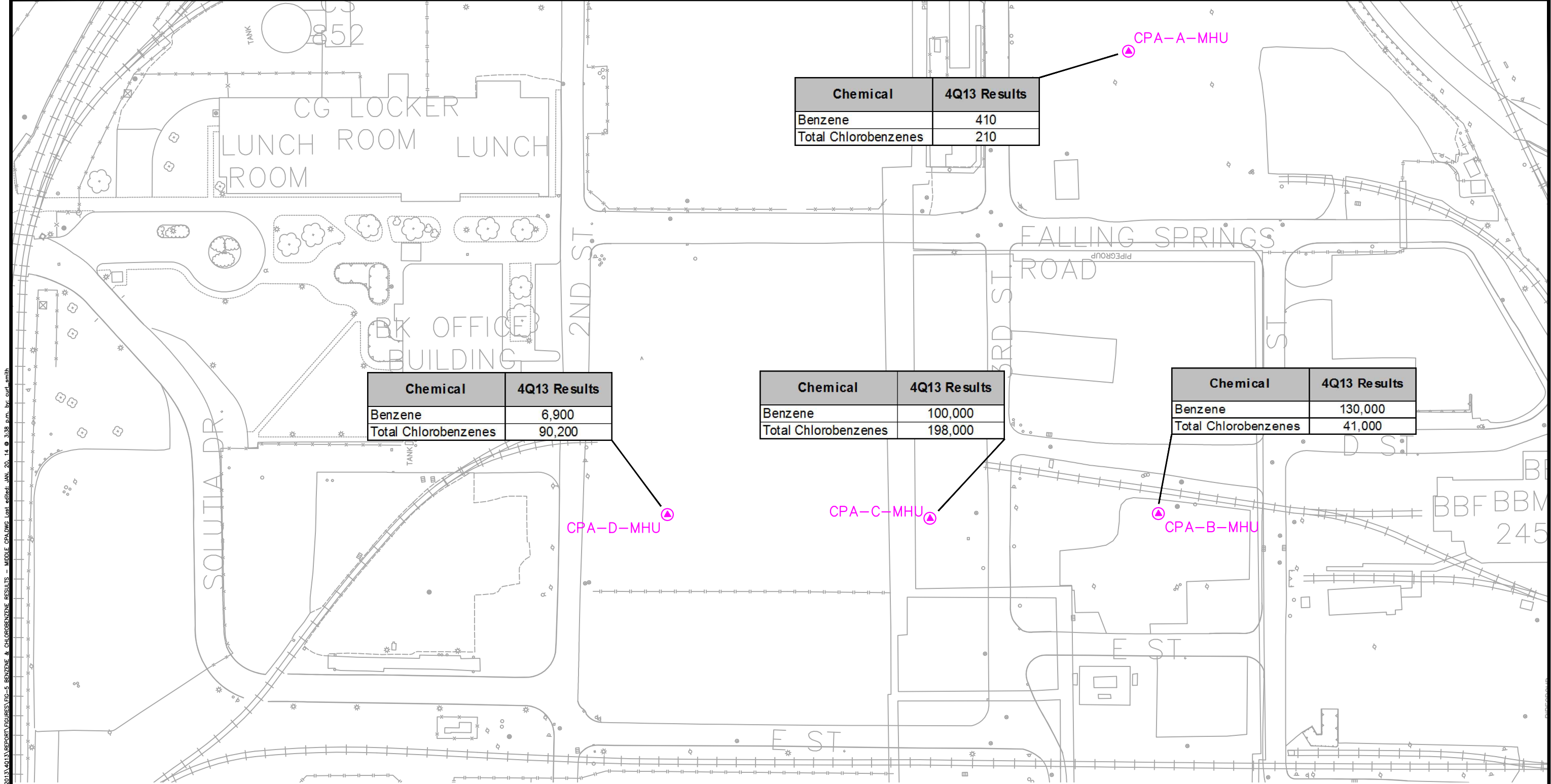
NOTES:

- TOTAL CHLOROBENZENES RESULTS INCLUDE THE SUM OF MONOCHLOROBENZENE, 1,2-DICHLOROBENZENE, 1,3-DICHLOROBENZENE, AND 1,4-DICHLOROBENZENE.
- RESULTS SHOWN ARE IN ug/L.
- ND DENOTES ANALYTE OR ANALYTES NOT DETECTED.



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DRN. BY:chs January 2014 DSGN. BY:nm CHKD. BY:nm	Benzene & Total Chlorobenzenes Results – Shallow Hydrogeologic Unit	FIG. NO. 4

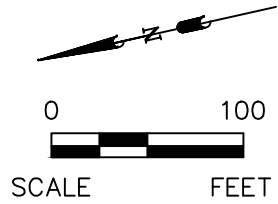
File: E:\ENVIRONMENTAL\SOLUTIONIA\WQ\QUARTERLY MONITORING\CPA WELLS\2013\4Q13\REPORT\FIGURES\FIG-5 BENZENE & CHLOROBENZENE RESULTS - MIDDLE CPA.DWG Last edited: JAN. 20, 14 @ 3:38 p.m. by: curt.smith



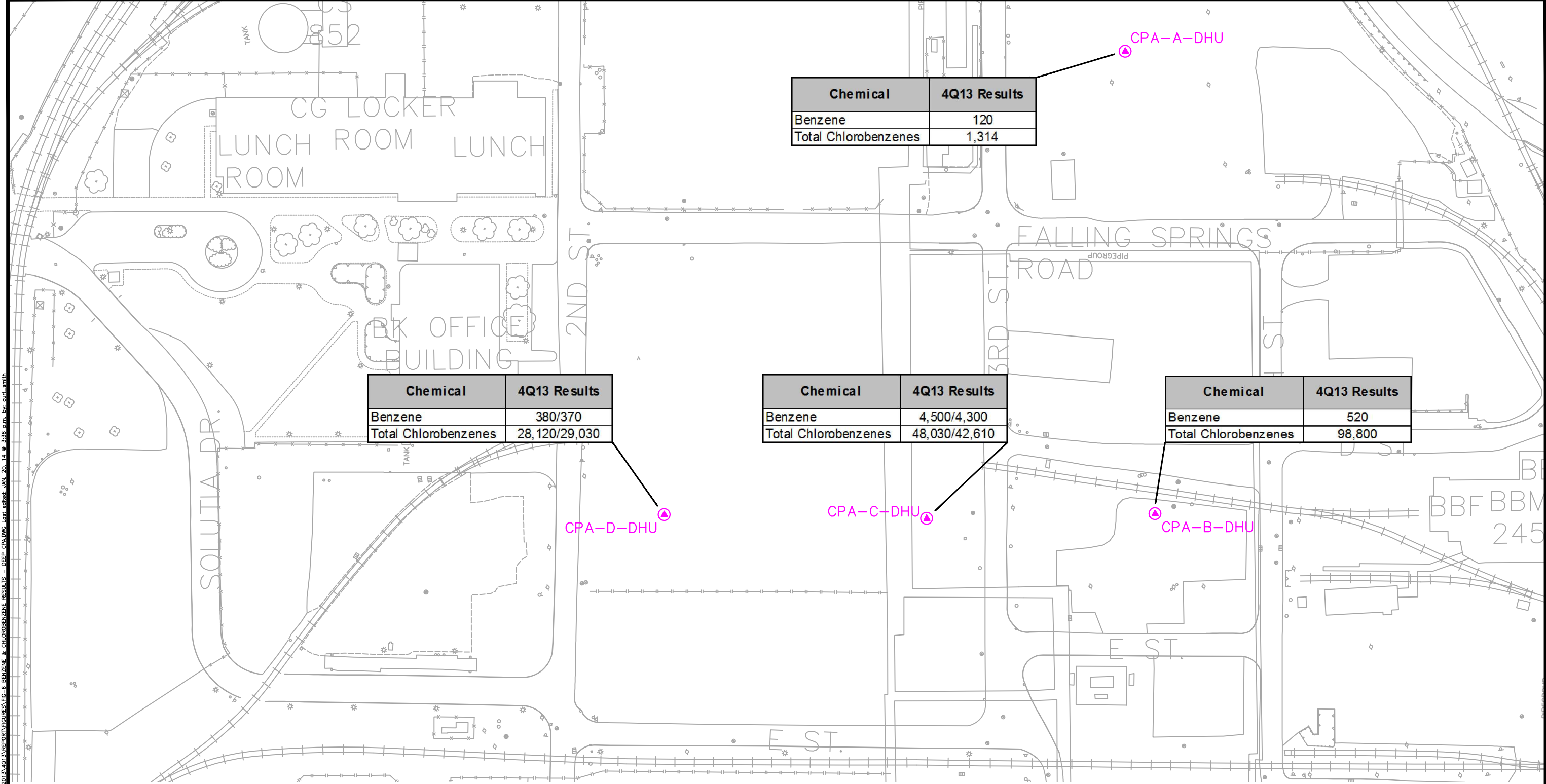
LEGEND

CPA MONITORING WELL LOCATION

- NOTES:**
- TOTAL CHLOROBENZENES RESULTS INCLUDE THE SUM OF MONOCHLOROBENZENE, 1,2-DICHLOROBENZENE, 1,3-DICHLOROBENZENE, AND 1,4-DICHLOROBENZENE.
 - RESULTS SHOWN ARE IN ug/L.
 - ND DENOTES ANALYTE OR ANALYTES NOT DETECTED.



CPA MONITORING PROGRAM 4TH QUARTER 2013 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562962
URS		
DRN. BY:chs January 2014 DSGN. BY:nm CHKD. BY:nm	Benzene & Total Chlorobenzenes Results – Middle Hydrogeologic Unit	FIG. NO. 5

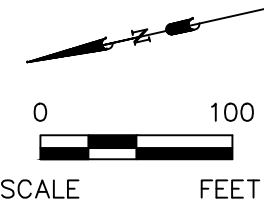


LEGEND

CPA MONITORING WELL LOCATION

NOTES:

1. TOTAL CHLOROBBENZENES RESULTS INCLUDE THE SUM OF MONOCHLOROBBENZENE, 1,2-DICHLOROBBENZENE, 1,3-DICHLOROBBENZENE, AND 1,4-DICHLOROBBENZENE.
2. RESULTS SHOWN ARE IN ug/L.
3. ND DENOTES ANALYTE OR ANALYTES NOT DETECTED.
4. MULTIPLE SAMPLE RESULTS INDICATE A DUPLICATE SAMPLE.



CPA MONITORING PROGRAM 4TH QUARTER 2013 DATA REPORT W.G. KRUMMRICH FACILITY SAUGET, ILLINOIS		PROJECT NO. 21562962
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DRN. BY:chs January 2014 DSGN. BY:nm CHKD. BY:nm	Benzene & Total Chlorobenzenes Results – Deep Hydrogeologic Unit	FIG. NO. 6

Tables

Table 1
Monitoring Well Gauging Information

Well ID	Construction Details						October 30, 2013			
	Ground Elevation* (feet)	Casing Elevation* (feet)	Depth to Top of Screen (feet bgs)	Depth to Bottom of Screen (feet bgs)	Top of Screen Elevation* (feet)	Bottom of Screen Elevation* (feet)	Depth to Water (feet btoc)	NAPL Thickness (feet)	Depth to Bottom** (feet btoc)	Water Elevation* (feet)
Shallow Hydrogeologic Unit (SHU 395-380 feet NAVD 88)										
CPA-A-SHU	413.97	416.35	28	33	385.97	380.97	20.70	-	35.37	395.65
CPA-B-SHU	409.16	408.84	21	25.4	388.16	383.76	13.68	-	25.07	395.16
CPA-C-SHU	408.86	408.46	21	25.8	387.86	383.06	13.06	-	23.36	395.40
CPA-D-SHU	409.73	412.38	21	25.4	388.73	384.33	17.32	-	28.19	395.06
Middle Hydrogeologic Unit (MHU 380-350 feet NAVD 88)										
CPA-A-MHU	413.98	416.25	58	62.2	355.98	351.78	20.57	-	65.32	395.68
CPA-B-MHU	409.13	408.76	51	55.5	358.13	353.63	12.92	-	55.06	395.84
CPA-C-MHU	408.90	408.57	51	55.5	357.90	353.40	13.50	-	54.61	395.07
CPA-D-MHU	409.72	412.32	51	55.8	358.72	353.92	17.50	-	58.48	394.82
Deep Hydrogeologic Unit (DHU 350 feet NAVD 88 - Bedrock)										
CPA-A-DHU	413.95	416.24	108	113.3	305.95	300.65	20.93	-	115.21	395.31
CPA-B-DHU	409.12	408.68	101	106.5	308.12	302.62	14.05	-	105.55	394.63
CPA-C-DHU	408.92	408.57	101	106	307.92	302.92	14.11	-	105.57	394.46
CPA-D-DHU	409.63	412.20	101	105.9	308.63	303.73	17.82	-	108.34	394.38

Notes:

* - Elevation based upon North American Vertical Datum (NAVD) 88 datum

** - Total depths are measured annually during the first quarter of each year

bgs - below ground surface

btoc - below top of casing

Table 2
Groundwater Analytical Results

Sample ID	Sample Date	VOC (µg/L)				
		Benzene	Chlorobenzene	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene
CPA-A-SHU-1113	11/12/2013	330	3,600	200	<50	1,800
CPA-A-MHU-1113	11/13/2013	410	210	<5	<5	<5
CPA-A-DHU-1113	11/13/2013	120	330	460	54	470
CPA-B-SHU-1113	11/13/2013	<200	29,000	220	<200	320
CPA-B-MHU-1113	11/13/2013	130,000	41,000	<1000	<1,000	<1,000
CPA-B-DHU-1113	11/13/2013	520	39,000	23,000	1,800	35,000
CPA-C-SHU-1113	11/14/2013	1,100	7,200	13,000	1,100	7,200
CPA-C-MHU-1113	11/14/2013	100,000	160,000	17,000	<2,500	21,000
CPA-C-DHU-1113	11/14/2013	4,500	24,000	9,300	730	14,000
CPA-C-DHU-1113-AD	11/14/2013	4,300	22,000	8,000	610	12,000
CPA-D-SHU-1113	11/15/2013	6,200	160,000	<2,000	<2,000	<2,000
CPA-D-MHU-1113	11/15/2013	6,900	53,000	20,000	1,200	16,000
CPA-D-DHU-1113	11/15/2013	380	22,000	2,900	420	2,800
CPA-D-DHU-1113-AD	11/15/2013	370	23,000	2,900	430	2,700

Notes:

µg/L = micrograms per liter

< = Result is non-detect, less than the reporting limit given.

BOLD indicates concentration greater than reporting limit.

AD = Analytical Duplicate

Table 3
Monitored Natural Attenuation Results Summary

Sample ID	Sample Date	Alkalinity (mg/L)	Carbon Dioxide (mg/L)	Chloride (mg/L)	Dissolved Oxygen (mg/L)	Ethane (ug/L)	Ethylene (ug/L)	Ferrous Iron (mg/L)	Iron (mg/L)	Iron, Dissolved (mg/L)	Manganese (mg/L)	Manganese, Dissolved (mg/L)	Methane (ug/L)	Nitrogen, Nitrate (mg/L)	Sulfate as SO ₄ (mg/L)	Total Organic Carbon (mg/L)	Dissolved Organic Carbon (mg/L)	ORP (mV)
CPA-A-SHU-1113	11/12/2013	380	69	43	0.09	4.7	<1		43		1.9		9,600	<0.05	550	27		-98.01
CPA-A-SHU-F(0.2)-1113	11/12/2013							>3.30		42		1.8					8.5	
CPA-A-MHU-1113	11/13/2013	600	29	32	0.12	13	<1		1.7		0.76		17,000	<0.05	<25	7.2		-87.99
CPA-A-MHU-F(0.2)-1113	11/13/2013							1.04		1.9		0.89					6.7	
CPA-A-DHU-1113	11/13/2013	450	24	54	0.05	3.9	<1		6.6		0.35		2,900	<0.05	93	4.3		-116.71
CPA-A-DHU-F(0.2)-1113	11/13/2013							>3.30		5.7		0.3					4.5	
CPA-B-SHU-1113	11/13/2013	510	220	150	0.33	<1.1	<1		43		3.4		110	<0.05	290	3.5		-22.47
CPA-B-SHU-F(0.2)-1113	11/13/2013							>3.30		44		3.6					3.5	
CPA-B-MHU-1113	11/13/2013	410	170	210	-0.02	160	<1		36		2.2		19,000	<0.05	72	18		-31.03
CPA-B-MHU-F(0.2)-1113	11/13/2013							>3.30		34		2.1					17	
CPA-B-DHU-1113	11/13/2013	330	21	65	0.07	<1.1	<1		9.6		0.55		30	<0.05	100	5.2		-86.30
CPA-B-DHU-F(0.2)-1113	11/13/2013							>3.30		9.2		0.53					5.4	
CPA-C-SHU-1113	11/14/2013	490	130	360	0.65	<1.1	<1		3		4.9		550	2.1 J	810	310		103.3
CPA-C-SHU-F(0.2)-1113	11/14/2013							<0.03		0.21		4.9					290 J	
CPA-C-MHU-1113	11/14/2013	370	170	700	-0.03	6.8	<1		52		3.8		13,000	<0.05	350	48		-47.45
CPA-C-MHU-F(0.2)-1113	11/14/2013							>3.30		53		3.8					44	
CPA-C-DHU-1113	11/14/2013	510	31	62	-0.05	2.2	<1		2.4		0.58		150	<0.05	63	31		-52.49
CPA-C-DHU-F(0.2)-1113	11/14/2013							1.75		2.2		0.56					32 J	
CPA-D-SHU-1113	11/15/2013	<5	<5	300	0.00	<1.1	<1		89		2.7		2.6	17 J	2,200	150		250.09
CPA-D-SHU-F(0.2)-1113	11/15/2013							>3.30		94		2.8					130	
CPA-D-MHU-1113	11/15/2013	530	61	290	0.27	9.4	<1		0.56		1.2		5,700	<0.05	180	41		34.32
CPA-D-MHU-F(0.2)-1113	11/15/2013							<0.03		0.33		1.3					42	
CPA-D-DHU-1113	11/15/2013	500	41	70	0.00	6.3	<1		0.17		0.33		310	<0.05	20	39		27.34
CPA-D-DHU-F(0.2)-1113	11/15/2013							<0.03		0.13		0.34					41	

Notes:

DO and ORP were measured in the field using a In-Situ Troll 9500 equipped with a flow-thru cell. Values presented represent final measurements before sampling.

Ferrous Iron readings were measured in the field using a Hach DR-890 Colorimeter after the groundwater passed through a 0.2 µm filter

F(0.2) = Sample was filtered utilizing a 0.2 µm filter during sample collection

mg/L = milligrams per liter

ug/L = micrograms per liter

mV = millivolts

< = Result is non-detect, less than the reporting limit given

J = estimated value

A blank space indicates sample not analyzed for select analyte

Appendix A

Groundwater Purging and Sampling Forms

**Troll 9000**

11/12/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 38 [ft]
Pump placement from TOC 30.5 [ft]

Well Information:

Well Id CPA-A-SHU
Well diameter 2 [in]
Well total depth 35.37 [ft]
Depth to top of screen 28 [ft]
Screen length 60 [in]
Depth to Water 21.25 [ft]

Pumping information:

Final pumping rate 300 [mL/min]
Flowcell volume 811.87 [mL]
Calculated Sample Rate 163 [sec]
Sample rate 163 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		13:59:10	61.34	6.67	1916.06	1.65	0.19	-92.75
		14:02:00	61.16	6.66	1910.96	1.01	0.15	-94.42
		14:04:49	60.93	6.66	1915.66	0.60	0.13	-95.74
		14:07:37	61.16	6.66	1916.97	0.48	0.11	-96.98
		14:10:26	61.32	6.65	1915.28	0.23	0.09	-98.01
Variance in last 3 readings		14:04:49	-0.22	0.00	4.70	-0.40	-0.02	-1.32
		14:07:37	0.23	-0.01	1.31	-0.12	-0.02	-1.24
		14:10:26	0.16	-0.01	-1.69	-0.25	-0.02	-1.03

Notes:

**Troll 9000**

11/13/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name dm sj
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 65 [ft]
Pump placement from TOC 60.1 [ft]

Well Information:

Well Id CPA-A-MHU
Well diameter 2 [in]
Well total depth 65.32 [ft]
Depth to top of screen 58 [ft]
Screen length 50.4 [in]
Depth to Water 21.25 [ft]

Pumping information:

Final pumping rate 300 [mL/min]
Flowcell volume 962.4 [mL]
Calculated Sample Rate 193 [sec]
Sample rate 193 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		9:44:26	58.97	6.84	1372.60	11.30	0.30	-67.67
		9:49:30	59.02	6.87	1379.67	1.71	0.26	-77.64
		9:53:04	59.55	6.89	1380.04	2.66	0.19	-82.22
		9:56:24	59.68	6.91	1381.04	6.05	0.15	-85.43
		9:59:44	59.68	6.92	1382.78	2.34	0.12	-87.99
Variance in last 3 readings		9:53:04	0.53	0.02	0.37	0.95	-0.07	-4.58
		9:56:24	0.13	0.01	1.00	3.39	-0.03	-3.21
		9:59:44	0.00	0.01	1.74	-3.71	-0.03	-2.57

Notes:

**Troll 9000**

11/13/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name dm sj
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 115 [ft]
Pump placement from TOC 113.3 [ft]

Well Information:

Well Id CPA-A-DHU
Well diameter 2 [in]
Well total depth 115.21 [ft]
Depth to top of screen 108 [ft]
Screen length 63.6 [in]
Depth to Water 21.55 [ft]

Pumping information:

Final pumping rate 300 [mL/min]
Flowcell volume 1241.18 [mL]
Calculated Sample Rate 249 [sec]
Sample rate 249 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		11:09:40	59.94	7.05	1340.67	66.47	0.30	-106.39
		11:13:58	60.01	7.03	1333.24	31.67	0.21	-110.08
		11:21:11	60.25	7.01	1325.81	13.00	0.10	-113.76
		11:25:29	60.49	7.00	1329.90	11.19	0.07	-115.38
		11:29:47	60.66	7.00	1327.95	7.42	0.05	-116.71
Variance in last 3 readings		11:21:11	0.24	-0.02	-7.43	-18.67	-0.12	-3.68
		11:25:29	0.24	-0.01	4.09	-1.81	-0.03	-1.63
		11:29:47	0.17	0.00	-1.95	-3.77	-0.02	-1.33

Notes:

**Troll 9000**

11/13/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 28 [ft]
Pump placement from TOC 25.4 [ft]

Well Information:

Well Id CPA-B-SHU
Well diameter 2 [in]
Well total depth 25.07 [ft]
Depth to top of screen 21 [ft]
Screen length 52.8 [in]
Depth to Water 13.18 [ft]

Pumping information:

Final pumping rate 300 [mL/min]
Flowcell volume 756.11 [mL]
Calculated Sample Rate 152 [sec]
Sample rate 152 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		13:23:53	65.49	6.35	3.45	-1.24	8.20	-52.25
		13:30:37	64.65	6.14	1957.20	16.60	1.48	-20.46
		13:33:15	64.66	6.07	1973.63	13.11	0.47	-17.94
		13:35:53	64.78	6.06	1997.14	10.83	0.44	-20.21
		13:38:31	64.83	6.05	2019.09	9.36	0.33	-22.47
Variance in last 3 readings		13:33:15	0.01	-0.07	16.43	-3.49	-1.01	2.52
		13:35:53	0.12	-0.01	23.51	-2.28	-0.03	-2.27
		13:38:31	0.05	0.00	21.95	-1.47	-0.11	-2.27

Notes:

**Troll 9000**

11/13/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 59 [ft]
Pump placement from TOC 55.4 [ft]

Well Information:

Well Id CPA-B-MHU
Well diameter 2 [in]
Well total depth 55.06 [ft]
Depth to top of screen 51 [ft]
Screen length 54 [in]
Depth to Water 13.14 [ft]

Pumping information:

Final pumping rate 300 [mL/min]
Flowcell volume 928.95 [mL]
Calculated Sample Rate 186 [sec]
Sample rate 186 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		14:28:12	62.85	6.06	1975.37	60.80	0.17	-7.86
		14:31:25	62.96	6.07	1921.82	28.94	0.09	-14.78
		14:34:38	63.06	6.09	1867.93	15.82	0.03	-20.94
		14:37:51	62.93	6.11	1818.54	9.48	0.00	-26.33
		14:41:04	62.89	6.13	1780.12	5.64	-0.02	-31.03
Variance in last 3 readings		14:34:38	0.10	0.02	-53.89	-13.12	-0.06	-6.16
		14:37:51	-0.13	0.02	-49.39	-6.34	-0.03	-5.39
		14:41:04	-0.04	0.02	-38.42	-3.84	-0.02	-4.70

Notes:



Troll 9000

11/13/13

Low-Flow System

ISI Low-Flow Log

Project Information:

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 111 [ft]
Pump placement from TOC 103.75 [ft]

Well Information:

Well Id CPA-B-DHU
Well diameter 2 [in]
Well total depth 105.55 [ft]
Depth to top of screen 101 [ft]
Screen length 66 [in]
Depth to Water 14.6 [ft]

Pumping information:

Final pumping rate 300 [mL/min]
Flowcell volume 1218.87 [mL]
Calculated Sample Rate 244 [sec]
Sample rate 244 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [µS/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings	15:41:01	62.29	6.86	1308.94	25.67	0.32	-73.64	
	15:45:14	62.29	6.86	1308.69	16.97	0.24	-78.30	
	15:49:27	62.23	6.86	1307.98	14.25	0.16	-81.68	
	15:53:40	62.22	6.86	1308.24	12.22	0.14	-84.29	
	15:57:53	62.12	6.86	1309.19	8.79	0.07	-86.30	
Variance in last 3 readings	15:49:27	-0.05	0.00	-0.70	-2.72	-0.07	-3.38	
	15:53:40	-0.02	0.00	0.26	-2.03	-0.03	-2.61	
	15:57:53	-0.10	0.00	0.95	-3.43	-0.07	-2.01	

Notes:

**Troll 9000**

11/14/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 29 [ft]
Pump placement from TOC 23.4 [ft]

Well Information:

Well Id CPA-C-SHU
Well diameter 2 [in]
Well total depth 23.36 [ft]
Depth to top of screen 21 [ft]
Screen length 57.6 [in]
Depth to Water 13.6 [ft]

Pumping information:

Final pumping rate 300 [mL/min]
Flowcell volume 761.69 [mL]
Calculated Sample Rate 153 [sec]
Sample rate 153 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		11:32:45	66.17	6.33	3229.15	11.36	0.71	102.96
		11:35:23	66.20	6.33	3220.54	10.60	0.70	103.30
		11:38:01	66.19	6.33	3215.49	9.51	0.68	103.65
		11:40:41	66.18	6.32	3210.91	9.22	0.67	105.57
		11:43:18	66.43	6.36	6.43	-1.16	0.65	103.30
Variance in last 3 readings		11:38:01	-0.01	0.00	-5.04	-1.10	-0.01	0.34
		11:40:41	-0.01	-0.01	-4.59	-0.29	-0.02	1.92
		11:43:18	0.25	0.03	-3204.48	-10.38	-0.02	-2.27

Notes:

**Troll 9000**

11/14/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 58 [ft]
Pump placement from TOC 53.2 [ft]

Well Information:

Well Id CPA-C-MHU
Well diameter 2 [in]
Well total depth 54.61 [ft]
Depth to top of screen 51 [ft]
Screen length 54.01 [in]
Depth to Water 13.85 [ft]

Pumping information:

Final pumping rate 300 [mL/min]
Flowcell volume 923.38 [mL]
Calculated Sample Rate 185 [sec]
Sample rate 185 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		14:11:42	64.56	6.21	3502.63	147.61	0.16	-34.19
		14:14:53	64.67	6.24	3353.07	84.02	0.03	-43.90
		14:18:05	64.63	6.24	3288.74	20.29	-0.01	-46.98
		14:21:17	64.63	6.24	3276.86	10.37	-0.03	-47.49
		14:24:29	64.60	6.23	3283.18	5.71	-0.03	-47.45
Variance in last 3 readings		14:18:05	-0.04	0.01	-64.33	-63.74	-0.04	-3.08
		14:21:17	0.00	0.00	-11.88	-9.91	-0.02	-0.51
		14:24:29	-0.03	-0.01	6.32	-4.66	0.01	0.04

Notes:

**Troll 9000**

11/14/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 108.5 [ft]
Pump placement from TOC 103.5 [ft]

Well Information:

Well Id CPA-C-DHU
Well diameter 2 [in]
Well total depth 105.57 [ft]
Depth to top of screen 101 [ft]
Screen length 60 [in]
Depth to Water 14.44 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 1204.94 [mL]
Calculated Sample Rate 181 [sec]
Sample rate 181 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		15:30:44	63.50	7.05	1398.52	21.52	-0.02	-45.44
		15:33:52	63.49	7.05	1398.40	15.59	-0.03	-47.66
		15:36:59	63.45	7.05	1398.59	12.80	-0.04	-49.50
		15:40:08	63.40	7.04	1398.56	10.98	-0.05	-51.16
		15:43:14	63.35	7.04	1398.68	9.73	-0.05	-52.49
Variance in last 3 readings		15:36:59	-0.04	0.00	0.18	-2.80	-0.01	-1.84
		15:40:08	-0.05	0.00	-0.03	-1.82	-0.01	-1.67
		15:43:14	-0.05	0.00	0.12	-1.25	0.00	-1.32

Notes:

**Troll 9000**

11/15/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 30 [ft]
Pump placement from TOC 23.2 [ft]

Well Information:

Well Id CPA-D-SHU
Well diameter 2 [in]
Well total depth 28.19 [ft]
Depth to top of screen 21 [ft]
Screen length 52.8 [in]
Depth to Water 17.45 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 767.26 [mL]
Calculated Sample Rate 116 [sec]
Sample rate 116 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		11:48:08	64.03	4.20	3609.59	40.26	0.09	257.29
		11:50:08	64.15	4.17	3669.91	20.13	0.05	255.40
		11:52:09	64.19	4.15	3708.28	12.36	0.03	253.43
		11:54:09	64.19	4.14	3730.27	9.29	0.01	251.67
		11:56:09	64.17	4.13	3748.31	8.69	0.00	250.09
Variance in last 3 readings		11:52:09	0.04	-0.02	38.36	-7.77	-0.02	-1.97
		11:54:09	0.00	-0.01	22.00	-3.07	-0.02	-1.76
		11:56:09	-0.02	-0.01	18.03	-0.60	-0.02	-1.58

Notes:

**Troll 9000**

11/15/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 60 [ft]
Pump placement from TOC 55.8 [ft]

Well Information:

Well Id CPA-D-MHU
Well diameter 2 [in]
Well total depth 58.48 [ft]
Depth to top of screen 51 [ft]
Screen length 57.6 [in]
Depth to Water 17.41 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 934.53 [mL]
Calculated Sample Rate 141 [sec]
Sample rate 141 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		12:39:48	63.45	6.73	2226.71	10.42	0.21	41.34
		12:42:15	63.36	6.73	2233.06	8.47	0.15	39.41
		12:44:40	63.44	6.73	2237.70	7.65	0.14	37.70
		12:47:06	63.42	6.74	2238.86	8.98	0.15	35.99
		12:49:33	63.47	6.74	2238.54	8.78	0.27	34.32
Variance in last 3 readings		12:44:40	0.09	0.00	4.64	-0.82	-0.01	-1.71
		12:47:06	-0.02	0.00	1.17	1.33	0.01	-1.71
		12:49:33	0.04	0.00	-0.32	-0.20	0.11	-1.67

Notes:

**Troll 9000**

11/15/13

Low-Flow System**ISI Low-Flow Log****Project Information:**

Operator Name sj dm
Company Name URS Corporation
Project Name Solutia WGK
Site Name Quarterly Groundwater Sampling - CPA

Pump Information:

Pump Model/Type Proactive SS Monsoon
Tubing Type LDPE
Tubing Diameter 0.19 [in]
Tubing Length 110 [ft]
Pump placement from TOC 103.45 [ft]

Well Information:

Well Id CPA-D-DHU
Well diameter 2 [in]
Well total depth 108.34 [ft]
Depth to top of screen 101 [ft]
Screen length 58.8 [in]
Depth to Water 18.26 [ft]

Pumping information:

Final pumping rate 400 [mL/min]
Flowcell volume 1213.3 [mL]
Calculated Sample Rate 182 [sec]
Sample rate 182 [sec]
Stabilized drawdown 0 [in]

Low-Flow Sampling Stabilization Summary

		Time	Temp [F]	pH [pH]	Cond [μ S/cm @25C]	Turb [NTU]	RDO [mg/L]	ORP [mV]
Stabilization Settings				+/-0.2	+/-0.1	+/-1	+/-0.2	+/-20
					+/-3 %	+/-10 %	+/-10 %	
Last 5 Readings		13:30:04	63.02	7.17	1396.29	43.01	0.14	37.18
		13:33:13	63.16	7.16	1394.49	29.30	0.06	34.40
		13:36:20	63.23	7.15	1394.38	20.53	0.04	31.87
		13:39:30	63.35	7.15	1393.67	11.62	0.02	29.48
		13:42:38	63.44	7.15	1393.62	8.13	0.00	27.34
Variance in last 3 readings		13:36:20	0.07	-0.01	-0.11	-8.77	-0.02	-2.52
		13:39:30	0.12	0.00	-0.71	-8.90	-0.03	-2.40
		13:42:38	0.09	0.00	-0.06	-3.49	-0.01	-2.14

Notes:

Appendix B

Chains-of-Custody

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Date: 11/12/13		COC No:											
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey		Carrier: FedEx		1 of 1 COCs											
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time		Filtered Sample VOCs by 8260 Total Fe/Mn by 6010B Alk/CO2 by 310.1 Chloride by 325.2/Sulfate by 375.4 Dissolved Gases by RSK 175 Nitrate by 353.2 TOC by 415.1 Dissolved Fe/Mn by 6010B DOC by 415.1		Job No.		SDG No.											
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>				Sample Specific Notes:													
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>																	
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks																	
Project Name: 4Q13 CPA GW Sampling		<input type="checkbox"/> 1 week																	
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days																	
PO#		<input type="checkbox"/> 1 day																	
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.													
CPA-A-SHA-1113		11/12/13	1415	G	Water	12	3	1	1	1	3	2	1						
CPA-A-SHA-F(0.2)-1113		11/12/13	1415	G	Water	2	X						1	1					
CPA- - -1113				G	Water	12		3	1	1	1	3	2	1					
CPA- - -F(0.2)-1113				G	Water	2	X						1	1					
CPA- - -1113				G	Water	12		3	1	1	1	3	2	1					
CPA- - -F(0.2)-1113				G	Water	2	X						1	1					
CPA- - -1113				G	Water	12		3	1	1	1	3	2	1					
CPA- - -F(0.2)-1113				G	Water	2	X						1	1					
CPA- - -1113				G	Water	12		3	1	1	1	3	2	1					
CPA- - -F(0.2)-1113				G	Water	2	X						1	1					
CPA- - -1113				G	Water	12		3	1	1	1	3	2	1					
CPA- - -F(0.2)-1113				G	Water	2	X						1	1					
4Q13 CPA Trip Blank #					Water	2		2											
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other							2	4	1	1	1	3.1	2	4	2				
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)												
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months												
Special Instructions/QC Requirements & Comments:																			
Relinquished by: <i>Samuel Mattingly</i>		Company: URS		Date/Time: 11/12/13 1549		Received by: <i>Mrs. Panda</i>		Company: TAS		Date/Time: 11/13/13		0936							
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:									
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:									

680-9611 Chain of Custody

1.4°C

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Date: 11/13/13		COC No:											
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey		Carrier: FedEx		1 of 2 COCs											
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time						Job No.											
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>						21562962.00004											
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>						SDG No.											
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks																	
Project Name: 4Q13 CPA GW Sampling		<input type="checkbox"/> 1 week																	
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days																	
PO#		<input type="checkbox"/> 1 day																	
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Filtered Sample	VOCs by 8260	Total Fe/Mn by 6010B	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010B	DOC by 415.1	Sample Specific Notes:		
CPA-A-MHU-1113	11/13/13	1005	G	Water	12			3	1	1	1	3	2	1					
CPA-A-MHUF(0.2)-1113		1005	G	Water	2	X								1	1				
CPA-A-DHU-1113		1135	G	Water	12			3	1	1	1	3	2	1					
CPA-A-DHUF(0.2)-1113		1135	G	Water	2	X								1	1				
CPA-B-SHU-1113		1345	G	Water	12			3	1	1	1	3	2	1					
CPA-B-SHUF(0.2)-1113		1345	G	Water	2	X								1	1				
CPA-B-MHU-1113		1450	G	Water	12			3	1	1	1	3	2	1					
CPA-B-MHUF(0.2)-1113		1450	G	Water	2	X								1	1				
CPA-A-MHU-1113-MS		1005	G	water	3			3											
CPA-A-MHU-1113-MSD		1005	G	water	3			3											
CPA-B-MHU-1113-EB		1405	G	water	3			3											
4Q13 CPA Trip Blank # 2	11/13/13	—	—	Water	2			2											
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other							2 4 1 1 1 3 1 2 4 2												
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)												
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Known							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months												
Special Instructions/QC Requirements & Comments:																			
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:									
Relinquished by:		URS		11/13/13 1800		[Signature]		PA-SAV		11/14/13 09:42									
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:									
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:									

680-96178 Chain of Custody

0.2, 0.6°C

680-96179

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Date: 11/13/13		COC No:								
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey		Carrier: FedEx		2 of 2 COCs								
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time						Job No.								
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>						21562962.00004								
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>						SDG No.								
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks														
Project Name: 4Q13 CPA GW Sampling		<input type="checkbox"/> 1 week														
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days														
PO#		<input type="checkbox"/> 1 day														
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	VOCs by 8260	Total Fe/Mn by 6010B	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010B	DOC by 415.1	Sample Specific Notes:
CPA-B-DHU-1113	11/13/13	1605	G	Water	12		3	1	1	1	3	2	1			
CPA-B-DHU-F(0.2)-1113	↓	1605	G	Water	2	X							1	1		
CPA-1113			G	Water	12		3	1	1	1	3	2	1			
CPA-F(0.2)-1113			G	Water	2	X							1	1		
CPA-1113			G	Water	12		3	1	1	1	3	2	1			
CPA-F(0.2)-1113			G	Water	2	X							1	1		
CPA-1113			G	Water	12		3	1	1	1	3	2	1			
CPA-F(0.2)-1113			G	Water	2	X							1	1		
CPA-1113			G	Water	12		3	1	1	1	3	2	1			
CPA-F(0.2)-1113			G	Water	2	X							1	1		
4Q13 CPA Trip Blank #				Water	2		2									
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other							2	4	1	1	1	3	2	4	2	
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Ison B <input type="checkbox"/> known							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/QC Requirements & Comments:																
Relinquished by:		Company: URS		Date/Time: 11/13/13		Received by:		Company: TA-SAV		Date/Time: 11/14/13 09:42						
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:						
Relinquished by:		Company:		Date/Time:		Received by:		Company:		Date/Time:						

0.2°C, 0.6°C

680-96179

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Carrier: FedEx		COC No:								
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey				1 of 1 COCs								
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time						Job No.								
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>						21562962.00004								
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>						SDG No.								
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks														
Project Name: 4Q13 CPA GW Sampling		<input type="checkbox"/> 1 week														
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days														
PO#		<input type="checkbox"/> 1 day														
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	VOCs by 8260	Total Fe/Mn by 6010B	Alt/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010B	DOC by 415.1	Sample Specific Notes:
CPA-C-SHU-1113	11/14/13	1140	G	Water	12		3	1	1	1	3	2	1			
CPA-C-SHU-F(0.2)-1113		1140	G	Water	2	X							1	1		
CPA-C-MHU-1113		1430	G	Water	12		3	1	1	1	3	2	1			
CPA-C-MHU-F(0.2)-1113		1430	G	Water	2	X							1	1		
CPA-C-DHU-1113		1545	G	Water	12		3	1	1	1	3	2	1			
CPA-C-DHU-F(0.2)-1113		1545	G	Water	2	X							1	1		
CPA- - -1113			G	Water	12		3	1	1	1	3	2	1			
CPA- - -F(0.2)-1113			G	Water	2	X							1	1		
CPA-C-MHU-1113-EB	11/14/13	1330	G	Water	3		3									
CPA-C-DHU-1113-AD	11/14/13	1545	G	Water	3		3									
4Q13 CPA Trip Blank # 3				Water	2		2									
Preservation Used: 1=Ice; 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other							2	4	1	1	1	3	1	2	4	2
Possible Hazard Identification							Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown							<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months									
Special Instructions/QC Requirements & Comments:																
68096229 1.0°C																
Relinquished by:	Company: URS		Date/Time: 11/14/13 noon		Received by:		Company: TAS		Date/Time: 11/15/13 0931							
Relinquished by:	Company:		Date/Time:		Received by:		Company:		Date/Time:							
Relinquished by:	Company:		Date/Time:		Received by:		Company:		Date/Time:							



680-96229 Chain of Custody

Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Carrier: FedEx		COC No:	
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey				1 of 1 COCs	
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time						Job No.	
St. Louis, MO 63110		Calendar (C) or Work Days (W) <u>C</u>						21567962.00004	
(314) 429-0100 Phone		TAT if different from Below <u>Standard</u>						SDG No.	
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks							
Project Name: 4Q13 CPA GW Sampling		<input type="checkbox"/> 1 week							
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days							
PO#		<input type="checkbox"/> 1 day							

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	VOCs by 8260	Total Fe/Mn by 6010B	Alk/CO2 by 310.1	Chloride by 325.2/Sulfate by 375.4	Dissolved Gases by RSK 175	Nitrate by 353.2	TOC by 415.1	Dissolved Fe/Mn by 6010B	DOC by 415.1	Sample Specific Notes:	
CPA-D-SHU-1113	11/15/13	1200	G	Water	12		3	1	1	1	3	2	1			
CPA-D-SHU-F(0.2)-1113		1200	G	Water	2	X							1	1		
CPA-D-MHU-1113		1250	G	Water	12		3	1	1	1	3	2	1			
CPA-D-MHU-F(0.2)-1113		1250	G	Water	2	X							1	1		
CPA-D-DHU-1113		1345	G	Water	12		3	1	1	1	3	2	1			
CPA-D-DHU-F(0.2)-1113		1345	G	Water	2	X							1	1		
CPA-D-1113			G	Water	12		3	1	1	1	3	2	1			
CPA-D-F(0.2)-1113			G	Water	2	X							1	1		
CPA-D-DHU-1113-AD	11/15/13	1345	G	water	3		3									
4Q13 CPA Trip Blank #4				Water	2		2									

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other						2 4 1 1 1 1 3 1 2 4 2					
Possible Hazard Identification						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Ion B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Special Instructions/QC Requirements & Comments:											

Relinquished by: <i>[Signature]</i>	Company: URS	Date/Time: 11/15/13 1530	Received by: <i>[Signature]</i>	Company: <i>[Signature]</i>	Date/Time: 11/16/13 0857
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

1.8-2
680-96268

Appendix C

Quality Assurance Report

QUALITY ASSURANCE REPORT

Solutia Inc.
W.G. Krummrich Facility
Sauget, Illinois

Chlorobenzene Process Area Groundwater Monitoring Program 4th Quarter 2013 Data Report

Prepared for

Solutia Inc.
575 Maryville Centre Drive
St. Louis, MO 63141

January 2014



URS Corporation
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Project # 21562962

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1.0 INTRODUCTION

This Quality Assurance Report presents the findings of a review of analytical data for groundwater samples collected in November of 2013 at the Solutia W.G. Krummrich plant as part of the 4th Quarter 2013 Chlorobenzene Processing Area Program. The samples were collected by URS Corporation personnel and analyzed by TestAmerica Laboratories located in Savannah, Georgia using USEPA methods, Standard methods and USEPA SW-846 methodologies. Groundwater samples were tested for volatile organic compounds (VOCs), metals, dissolved gasses, and Monitored Natural Attenuation (MNA) parameters.

One hundred percent of the data were subjected to a Level III data quality review. The Level III data reviews were performed in order to confirm that the analytical data provided by TestAmerica were acceptable in quality for their intended use.

A total of 16 groundwater samples (twelve investigative samples, two field duplicate pairs, and one MS/MSD pair) were analyzed by TestAmerica. Additionally, two equipment blanks were collected and analyzed by TestAmerica. In addition, four trip blank sets were included in the coolers that contained groundwater samples for VOCs by USEPA SW-846 Method 8260B analysis. These samples were analyzed as two sample delivery groups (SDGs), KPS102, KPS103, KPS104, and KPS105 utilizing the following USEPA SW-846 Methods:

- Method 8260B for VOCs (Benzene, Chlorobenzene, 1,2-Dichlorobenzene, 1,3-Dichlorobenzene and 1,4-Dichlorobenzene)
- Method 6010C for total and dissolved iron and manganese

Samples were also analyzed for MNA parameters by the following methods:

- Method RSK-175 for Dissolved Gasses (Ethane, Ethylene, and Methane)
- USEPA Method 310.1 for Alkalinity and Free Carbon Dioxide
- USEPA Method 325.2 for Chloride
- USEPA Method 353.2 for Nitrogen, Nitrate
- USEPA Method 375.4 for Sulfate
- USEPA Method 415.1 for Total and Dissolved Organic Carbon

Samples were reviewed following procedures outlined in the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008), USEPA Contract Laboratory Program National Functional Guidelines for Superfund Inorganic Data Review (USEPA 2010), and the Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009).

The above guidelines provided the criteria to review the data. Additional quantitative criteria are given in the analytical methods. Qualifiers assigned by the data reviewer have been applied to the laboratory report. The qualifiers indicate data that did not meet acceptance criteria and corrective actions were not successful or not performed. The various qualifiers are explained in **Tables 1** and **2** below:

TABLE 1 Laboratory Data Qualifiers

Lab Qualifier	Definition
U	Analyte was not detected at or above the reporting limit.
*	LCS, LCSD, MS, MSD, MD or surrogate exceeds the control limits.
E	Result exceeded the calibration range, secondary dilution required.
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution will be flagged with a D.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
X	Spike recovery exceeds upper or lower control limits.
F	MS, MSD or RPD exceeds upper or lower control limits.
P	The difference between the results of the two GC columns is greater than 40%
H	Sample was prepped or analyzed beyond the specified holding time.
B	Compound was found in the blank and sample.
4	MS, MSD: The analyte present in the original sample is 4 times greater than the matrix spike concentration; therefore, control limits are not applicable.
^	ICV, CCV, ICB, CCB, ISA, ISB, CRI, CRA, DLCK, or MRL standard: Instrument related QC exceeds the control limits.

TABLE 2 URS Data Qualifiers

	Definition
U	The analyte was analyzed for but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
UU	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The sample results were rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

Based on the criteria outlined, it is recommended that the results reported for these analyses are accepted for their intended use. Acceptable levels of accuracy, precision, and representativeness (based on MS/MSD, LCS, surrogate compounds and field duplicate results) were achieved for this data set, except where noted in this report. In addition, analytical completeness, defined as the

percentage of analytical results that are judged to be valid, including estimated detect/non-detect (J/UJ) data was 100 percent, which meets the completeness goal of 95 percent.

The data review included evaluation of the following criteria:

Organics

- Data package completeness
- Laboratory case narrative/cooler receipt form and sample holding times
- Laboratory method blanks, field equipment blanks and trip blank samples
- Laboratory control sample (LCS) recoveries
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) sample recoveries and relative percent difference (RPD) values
- Internal Standard (IS) recoveries
- Laboratory duplicate results
- Field duplicate results
- Results reported from dilutions
- Additional qualifications

Inorganics/General chemistry

- Data package completeness
- Laboratory case narrative/cooler receipt form and sample holding times
- Laboratory method blank and field equipment blank samples
- LCS recoveries
- MS/MSD sample recoveries and matrix duplicate RPD values
- Field duplicate and laboratory duplicate results
- Results reported from dilutions
- Additional qualifications

The following sections present the results of the data review.

2.0 RECEIPT CONDITION AND SAMPLE HOLDING TIMES

Sample holding time requirements for the analyses performed are presented in the methods and/or in the data review guidelines. Review of the sample collection, extraction and analysis dates involved comparing the chain-of-custody and the laboratory data summary forms for accuracy, consistency, and holding time compliance.

The cooler receipt forms for SDGs KPS102, KPS103, KPS104, and KPS105 indicated that coolers were received by the laboratory at temperatures below the $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ criteria. The samples were received in good condition; therefore no qualification of data was required.

The cooler receipt form for SDG KPS103 indicated two out of three VOA vials for matrix spike sample CPA-A-MHU-1113 MS were received by the laboratory with headspace. The remaining vials without headspace contained sufficient sample to complete all requested analyses; therefore no qualification of data was required.

Additionally, the cooler receipt form for SDG KPS104 indicated samples CPA-C-DHU-F(0.2)-1113 and CPA-C-SHU-F(0.2)-1113 were received at a pH >2 for dissolved organic carbon; please see section 10.0 of this report for qualifications

3.0 TRIP BLANKS, LABORATORY METHOD BLANK AND EQUIPMENT BLANK SAMPLES

Trip blank samples are used to assess VOC cross contamination of samples during shipment to the laboratory. Trip blanks were submitted with each cooler shipped containing samples for VOC analyses for a total of four trip blank sample sets. Trip blank samples were non-detect.

Laboratory method blank samples evaluate the existence and magnitude of contamination problems resulting from laboratory activities. Laboratory method blank samples were analyzed at the method prescribed frequencies. Method blank samples were non-detect.

Equipment blank samples are used to assess the effectiveness of equipment decontamination procedures. Analytes detected in the equipment blank are summarized in the table below.

SDG	Blank ID	Parameter	Analyte	Concentration/Amount
KPS103	CPA-B-MHU-1113-EB	VOCs	Chlorobenzene	5.0 ug/L
KPS104	CPA-C-MHU-1113-EB	VOCs	Chlorobenzene	15 ug/L
KPS104	CPA-C-MHU-1113-EB	VOCs	1,2-Dichlorobenzene	62 ug/L
KPS104	CPA-C-MHU-1113-EB	VOCs	1,3-Dichlorobenzene	6.5 ug/L
KPS104	CPA-C-MHU-1113-EB	VOCs	1,4-Dichlorobenzene	69 ug/L

Analytical data reported non-detect or at concentrations greater than five times (5X) the associated blank concentration did not require qualification. No qualification of data was required.

4.0 SURROGATE SPIKE RECOVERIES

Surrogate compounds are used to evaluate overall laboratory performance for sample preparation efficiency on a per sample basis. Samples analyzed for VOCs were spiked with surrogate compounds during sample preparation. USEPA National Functional Guidelines for Superfund Organic Methods Data Review (USEPA 2008) state how data is qualified when surrogate spike recoveries do not meet acceptance criteria.

Groundwater surrogate recoveries were within evaluation criteria, with the exception summarized in the following table.

Sample ID	Parameter	Surrogate	Recovery	Criteria
4Q13 CPA Trip Blank	VOCs	Dibromofluoromethane	132	70-130
4Q13 CPA Trip Blank #2	VOCs	Dibromofluoromethane	131	70-130
4Q13 CPA Trip Blank #4	VOCs	Dibromofluoromethane	131	70-130

Surrogates that were associated with quality control samples or were diluted out and not recovered did not require qualification. No qualification of data was required.

5.0 LABORATORY CONTROL SAMPLE RECOVERIES

Laboratory control samples (LCS) are analyzed with each analytical batch to assess the accuracy of the analytical process. LCS recoveries were within evaluation criteria, with the exception summarized in the following table.

LCS ID	Parameter	Analyte	LCS Recovery	LCS Criteria
LCS 680-303565/14	General chemistry	Nitrate	111	90-110
LCS 680-303622/14	General chemistry	Nitrate	113	90-110

Analytical data that required qualification based on LCS data are included in the table below. Analytical data reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification.

Sample ID	Parameter	Analyte	Qualification
CPA-C-SHU-1113	General chemistry	Nitrate	J
CPA-D-SHU-1113	General chemistry	Nitrate	J

6.0 MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) SAMPLES

MS/MSD samples are analyzed to assess the accuracy and precision of the analytical process on an analytical sample in a particular matrix. MS/MSD samples were required to be collected at a frequency of one per 20 investigative samples in accordance with the work plan. URS

Corporation submitted one MS/MSD sample set for 12 investigative samples meeting the work plan frequency requirement.

Groundwater samples spiked and analyzed as MS/MSDs and their respective recoveries were within evaluation criteria with the exception summarized in the following table:

SDG	MS/MSD ID	Parameter	Analyte	MS/MSD Recovery (%)	RPD	MS/MSD/ RPD Criteria
KPS103	CPA-A-MHU-1113	VOCs	Benzene	82/67	6	74-123/30

USEPA National Functional Guidelines for Organic Data Review indicates that organic data does not require qualification based on MS/MSD data alone and LCS recoveries were within evaluation criteria. Manganese MS/MSD recoveries in sample CPA-C-SHU-1113, dissolved organic carbon MS/MSD recoveries in sample CPA-C-SHU-F(0.2)-1113, and sulfate MS/MSD recoveries in sample CPA-D-MHU-1113, could not be evaluated because the sample concentrations were greater than four times (4X) the matrix spike concentration. No qualification of data was required.

7.0 FIELD DUPLICATE RESULTS

Field duplicate results are used to evaluate precision of the entire data collection activity, including sampling, analysis and site heterogeneity. When results for both duplicate and sample values are greater than five times the practical quantitation limit (PQL), satisfactory precision is indicated by an RPD less than or equal to 25 percent for aqueous samples. Where one or both of the results of a field duplicate pair are reported at less than five times the PQL, satisfactory precision is indicated if the field duplicate results agree within two times the quantitation limit. Field duplicate results that do not meet these criteria may indicate unsatisfactory precision of the results.

Two pairs of field duplicate samples were collected for the twelve investigative groundwater samples. This satisfies the requirement in the work plan (one per ten investigative samples or ten percent). Groundwater field duplicate RPDs were within evaluation criteria.

Additionally, six samples were analyzed as laboratory duplicates. Sample CPA-A-DHU-1113 was duplicated and analyzed for sulfate, sample CPA-B-SHU-1113 was duplicated and analyzed for total organic carbon, and sample CPA-C-SHU-1113 was duplicated and analyzed for total organic carbon. Sample CPA-D-SHU-1113 was duplicated and analyzed for alkalinity and free carbon dioxide, sample CPA-D-DHU-1113 was duplicated and analyzed for sulfate, and sample CPA-D-MHU-F(0.2)-1113 was duplicated and analyzed for dissolved organic carbon. Laboratory duplicate RPDs were within evaluation criteria.

8.0 INTERNAL STANDARD RESPONSES

Internal standard (IS) performance criteria ensure that the GC/MS sensitivity and response are stable during each analytical run. IS areas must be within -50 percent to +100 percent for VOCs.

The internal standards area responses for VOCs were verified for the data review. VOC IS responses met the criteria as described above for all groundwater samples. No qualification of data was required.

9.0 RESULTS REPORTED FROM DILUTIONS

VOCs, sulfate, chloride, nitrate, and total and dissolved organic carbon results for groundwater samples were diluted when high levels of target analytes were present. The diluted sample results for these analytes were reported for the associated samples.

10.0 ADDITIONAL QUALIFICATIONS

Calibration recoveries were outside evaluation criteria for nitrate in the following samples; data qualifications are included below.

Sample ID	Parameter	Analyte	Qualification
CPA-C-MHU-1113	General chemistry	Nitrate	UJ
CPA-C-DHU-1113	General chemistry	Nitrate	UJ
CPA-D-MHU-1113	General chemistry	Nitrate	UJ
CPA-D-SHU-1113	General chemistry	Nitrate	UJ

Additionally, dissolved organic carbon and dissolved metals samples were received at a pH>2. The pH was appropriately adjusted for the dissolved metals samples. Analytical data requiring qualification are included in the following table.

Sample ID	Parameter	Analyte	Qualification
CPA-C-DHU-F(0.2)-1113	General chemistry	Dissolved organic carbon	J
CPA-C-SHU-F(0.2)-1113	General chemistry	Dissolved organic carbon	J

Appendix D
Groundwater Analytical Results
(with Data Review Reports)

4Q 2013 CPA Data Review

Laboratory SDG: KPS102

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 12/10/2013

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008. USEPA National Functional Guidelines for Superfund Inorganic Data Review 2010

Work Plan: Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009)

Sample Identification	
CPA-A-SHU-1113	CPA-A-SHU-F(0.2)-1113
4Q13 CPA Trip Blank	

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated the VOC surrogate recovery for dibromofluoromethane was outside evaluation criteria in sample 4Q13 CPA Trip Blank. Sample CPA-A-SHU-1113 was diluted due to high levels of VOCs and sulfate. These issues are addressed further in the appropriate sections below.

The cooler receipt form indicated that one of one coolers was received by the laboratory at a temperature of 1.4°C, which is outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

Yes

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

No

Sample ID	Parameter	Surrogate	Recovery	Criteria
4Q13 CPA Trip Blank	VOCs	Dibromofluoromethane	132	70-130

Analytical data reported as non-detect and associated with surrogate recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. Sample 4Q13 CPA Trip Blank is a quality control sample and is not qualified. No qualification of data was required.

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

No

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

Yes

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

No

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

No

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; analytes were detected in samples that were diluted.

12.0 Additional Qualifications

Were additional qualifications applied?

No

SDG KPS102

Results of Samples from Monitoring Wells:

CPA-A-SHU

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-96111-1
TestAmerica Sample Delivery Group: KPS102
Client Project/Site: WGK - CPA GW 4Q13

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele Kersey

Authorized for release by:
11/27/2013 8:18:28 AM

Michele Kersey, Project Manager I
(912)354-7858
michele.kersey@testamericainc.com

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Reviewed on
DEC 10 2013
MM

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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DEC 10 2013

A handwritten signature in black ink, located at the bottom right of the page, below the date stamp.

Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Job ID: 680-96111-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: WGK - CPA GW 4Q13

Report Number: 680-96111-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/13/2013 9:36 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.4° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples CPA-A-SHU-1113 (680-96111-1) and 4Q13 CPA Trip Blank (680-96111-3) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/20/2013 and 11/21/2013.

Surrogate recovery for the following sample was outside the upper control limit: 4Q13 CPA Trip Blank (680-96111-3). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Sample CPA-A-SHU-1113 (680-96111-1)[50X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the volatiles analysis.

All other quality control parameters were within the acceptance limits.

DISSOLVED GASES

Sample CPA-A-SHU-1113 (680-96111-1) was analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/15/2013.

No difficulties were encountered during the dissolved gases analysis.

All quality control parameters were within the acceptance limits.

METALS (ICP)

Sample CPA-A-SHU-F(0.2)-1113 (680-96111-2) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/14/2013 and analyzed on 11/16/2013.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

DEC 10 2013

TestAmerica Savannah

Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Job ID: 680-96111-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

METALS (ICP)

Sample CPA-A-SHU-1113 (680-96111-1) was analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/13/2013 and analyzed on 11/14/2013.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

ALKALINITY

Sample CPA-A-SHU-1113 (680-96111-1) was analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/26/2013.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

CHLORIDE

Sample CPA-A-SHU-1113 (680-96111-1) was analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/21/2013.

No difficulties were encountered during the chloride analysis.

All quality control parameters were within the acceptance limits.

NITRATE-NITRITE AS NITROGEN

Sample CPA-A-SHU-1113 (680-96111-1) was analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/13/2013.

No difficulties were encountered during the nitrate-nitrite analysis.

All quality control parameters were within the acceptance limits.

SULFATE

Sample CPA-A-SHU-1113 (680-96111-1) was analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/19/2013.

Sample CPA-A-SHU-1113 (680-96111-1)[20X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the sulfate analysis.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON

Sample CPA-A-SHU-1113 (680-96111-1) was analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/23/2013.

No difficulties were encountered during the TOC analysis.

All quality control parameters were within the acceptance limits.

DISSOLVED ORGANIC CARBON (DOC)

Sample CPA-A-SHU-F(0.2)-1113 (680-96111-2) was analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 11/22/2013.

DEC 10 2013

TestAmerica Savannah

Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Job ID: 680-96111-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

No difficulties were encountered during the DOC analysis.

All quality control parameters were within the acceptance limits.



DEC 10 2013

TestAmerica Savannah

Sample Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-96111-1	CPA-A-SHU-1113 ✓	Water	11/12/13 14:15	11/13/13 09:36
680-96111-2	CPA-A-SHU-F(0.2)-1113 ✓	Water	11/12/13 14:15	11/13/13 09:36
680-96111-3	4Q13 CPA Trip Blank ✓	Water	11/12/13 00:00	11/13/13 09:36

DEC 10 2013

TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

DEC 10 2013

TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
■	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

DEC 10 2013

TestAmerica Savannah

Detection Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Client Sample ID: CPA-A-SHU-1113

Lab Sample ID: 680-96111-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	330		50		ug/L	50		8260B	Total/NA
Chlorobenzene	3600		50		ug/L	50		8260B	Total/NA
1,2-Dichlorobenzene	200		50		ug/L	50		8260B	Total/NA
1,4-Dichlorobenzene	1800		50		ug/L	50		8260B	Total/NA
Ethane	4.7		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	9600		0.58		ug/L	1		RSK-175	Total/NA
Iron	43		0.050		mg/L	1		6010C	Total
									Recoverable
Manganese	1.9		0.010		mg/L	1		6010C	Total
									Recoverable
Chloride	43		1.0		mg/L	1		325.2	Total/NA
Sulfate	550		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	27		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	380		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	69		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-A-SHU-F(0.2)-1113

Lab Sample ID: 680-96111-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	42		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.8		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	8.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: 4Q13 CPA Trip Blank

Lab Sample ID: 680-96111-3

No Detections.

This Detection Summary does not include radiochemical test results.

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TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Client Sample ID: CPA-A-SHU-1113

Lab Sample ID: 680-96111-1

Date Collected: 11/12/13 14:15

Matrix: Water

Date Received: 11/13/13 09:36

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	330		50		ug/L			11/21/13 15:08	50
Chlorobenzene	3600		50		ug/L			11/21/13 15:08	50
1,2-Dichlorobenzene	200		50		ug/L			11/21/13 15:08	50
1,3-Dichlorobenzene	50	U	50		ug/L			11/21/13 15:08	50
1,4-Dichlorobenzene	1800		50		ug/L			11/21/13 15:08	50

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	95		70 - 130					11/21/13 15:08	50
Dibromofluoromethane	94		70 - 130					11/21/13 15:08	50
Toluene-d8 (Surr)	101		70 - 130					11/21/13 15:08	50

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	4.7		1.1		ug/L			11/15/13 15:09	1
Ethylene	1.0	U	1.0		ug/L			11/15/13 15:09	1
Methane (TCD)	9600		0.58		ug/L			11/15/13 15:09	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	43		0.050		mg/L		11/13/13 15:13	11/14/13 18:47	1
Manganese	1.9		0.010		mg/L		11/13/13 15:13	11/14/13 18:47	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	43		1.0		mg/L			11/21/13 09:28	1
Nitrate as N	0.050	U	0.050		mg/L			11/13/13 16:35	1
Sulfate	550		100		mg/L			11/19/13 16:07	20
Total Organic Carbon	27		1.0		mg/L			11/23/13 08:00	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	380		5.0		mg/L			11/26/13 13:26	1
Carbon Dioxide, Free	69		5.0		mg/L			11/26/13 13:26	1

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TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Client Sample ID: CPA-A-SHU-F(0.2)-1113

Lab Sample ID: 680-96111-2

Date Collected: 11/12/13 14:15

Matrix: Water

Date Received: 11/13/13 09:36

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	42		0.050		mg/L		11/14/13 17:25	11/16/13 07:42	1
Manganese, Dissolved	1.8		0.010		mg/L		11/14/13 17:25	11/16/13 07:42	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	8.5		1.0		mg/L			11/22/13 21:13	1

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TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Client Sample ID: 4Q13 CPA Trip Blank

Lab Sample ID: 680-96111-3

Date Collected: 11/12/13 00:00

Matrix: Water

Date Received: 11/13/13 09:36

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 10:24	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 10:24	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 10:24	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 10:24	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 10:24	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	106		70 - 130					11/20/13 10:24	1
Dibromofluoromethane	132	X	70 - 130					11/20/13 10:24	1
Toluene-d8 (Surr)	97		70 - 130					11/20/13 10:24	1

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TestAmerica Savannah

Surrogate Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	BFB (70-130)	DBFM (70-130)	TOL (70-130)
680-96111-1	CPA-A-SHU-1113	95	94	101
680-96111-3	4Q13 CPA Trip Blank	106	132 X	97
LCS 680-304112/3	Lab Control Sample	107	125	103
LCS 680-304391/4	Lab Control Sample	67	94	101
LCSD 680-304112/4	Lab Control Sample Dup	110	118	103
LCSD 680-304391/5	Lab Control Sample Dup	89	97	102
MB 680-304112/7	Method Blank	104	127	95
MB 680-304391/8	Method Blank	91	108	96

Surrogate Legend

BFB = 4-Bromofluorobenzene

DBFM = Dibromofluoromethane

TOL = Toluene-d8 (Surr)

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TestAmerica Savannah

QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-304112/7
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		70 - 130		11/20/13 09:53	1
Dibromofluoromethane	127		70 - 130		11/20/13 09:53	1
Toluene-d8 (Surr)	95		70 - 130		11/20/13 09:53	1

Lab Sample ID: LCS 680-304112/3
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	50.6		ug/L		101	74 - 123
Chlorobenzene	50.0	53.9		ug/L		108	79 - 120
1,2-Dichlorobenzene	50.0	50.5		ug/L		101	77 - 124
1,3-Dichlorobenzene	50.0	48.9		ug/L		98	79 - 123
1,4-Dichlorobenzene	50.0	51.5		ug/L		103	76 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	107		70 - 130
Dibromofluoromethane	125		70 - 130
Toluene-d8 (Surr)	103		70 - 130

Lab Sample ID: LCSD 680-304112/4
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	50.0	51.6		ug/L		103	74 - 123	2	30
Chlorobenzene	50.0	50.9		ug/L		102	79 - 120	6	30
1,2-Dichlorobenzene	50.0	51.6		ug/L		103	77 - 124	2	30
1,3-Dichlorobenzene	50.0	50.2		ug/L		100	79 - 123	3	30
1,4-Dichlorobenzene	50.0	51.7		ug/L		103	76 - 124	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	110		70 - 130
Dibromofluoromethane	118		70 - 130
Toluene-d8 (Surr)	103		70 - 130

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-304391/8
Matrix: Water
Analysis Batch: 304391

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
Chlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	91		70 - 130		11/21/13 13:38	1
Dibromofluoromethane	108		70 - 130		11/21/13 13:38	1
Toluene-d8 (Surr)	96		70 - 130		11/21/13 13:38	1

Lab Sample ID: LCS 680-304391/4
Matrix: Water
Analysis Batch: 304391

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	47.5		ug/L		95	74 - 123
Chlorobenzene	50.0	48.4		ug/L		97	79 - 120
1,2-Dichlorobenzene	50.0	43.3		ug/L		87	77 - 124
1,3-Dichlorobenzene	50.0	40.6		ug/L		81	79 - 123
1,4-Dichlorobenzene	50.0	41.8		ug/L		84	76 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	87		70 - 130
Dibromofluoromethane	94		70 - 130
Toluene-d8 (Surr)	101		70 - 130

Lab Sample ID: LCSD 680-304391/5
Matrix: Water
Analysis Batch: 304391

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	47.8		ug/L		96	74 - 123	0	30
Chlorobenzene	50.0	49.6		ug/L		99	79 - 120	2	30
1,2-Dichlorobenzene	50.0	43.4		ug/L		87	77 - 124	0	30
1,3-Dichlorobenzene	50.0	41.2		ug/L		82	79 - 123	1	30
1,4-Dichlorobenzene	50.0	42.1		ug/L		84	76 - 124	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	89		70 - 130
Dibromofluoromethane	97		70 - 130
Toluene-d8 (Surr)	102		70 - 130

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-303419/8
Matrix: Water
Analysis Batch: 303419

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Oil Fac
Ethane	1.1	U	1.1		ug/L			11/15/13 11:11	1
Ethylene	1.0	U	1.0		ug/L			11/15/13 11:11	1
Methane	0.58	U	0.58		ug/L			11/15/13 11:11	1
Methane (TCD)	0.58	U	0.58		ug/L			11/15/13 11:11	1

Lab Sample ID: LCS 680-303419/11
Matrix: Water
Analysis Batch: 303419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	2210		ug/L		115	75 - 125

Lab Sample ID: LCS 680-303419/9
Matrix: Water
Analysis Batch: 303419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	295		ug/L		102	75 - 125
Ethylene	269	276		ug/L		102	75 - 125
Methane	154	150		ug/L		97	75 - 125

Lab Sample ID: LCSD 680-303419/10
Matrix: Water
Analysis Batch: 303419

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	303		ug/L		105	75 - 125	2	30
Ethylene	269	279		ug/L		104	75 - 125	1	30
Methane	154	154		ug/L		100	75 - 125	3	30

Lab Sample ID: LCSD 680-303419/12
Matrix: Water
Analysis Batch: 303419

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	2180		ug/L		113	75 - 125	1	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-303079/1-A
Matrix: Water
Analysis Batch: 303420

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 303079

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/13/13 15:13	11/14/13 17:17	1
Manganese	0.010	U	0.010		mg/L		11/13/13 15:13	11/14/13 17:17	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 680-303079/2-A
Matrix: Water
Analysis Batch: 303420

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 303079

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Iron	5.00	4.96		mg/L		99	75 - 125	
Manganese	0.500	0.506		mg/L		101	75 - 125	

Lab Sample ID: MB 680-303335/1-A
Matrix: Water
Analysis Batch: 303580

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 303335

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Iron, Dissolved	0.050	U	0.050		mg/L		11/14/13 17:25	11/16/13 07:33	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/14/13 17:25	11/16/13 07:33	1

Lab Sample ID: LCS 680-303335/2-A
Matrix: Water
Analysis Batch: 303580

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 303335

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Iron, Dissolved	5.00	4.94		mg/L		99	75 - 125	
Manganese, Dissolved	0.500	0.496		mg/L		99	75 - 125	

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-305221/5
Matrix: Water
Analysis Batch: 305221

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB MB		RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Alkalinity	5.0	U	5.0		mg/L			11/26/13 13:10	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/26/13 13:10	1

Lab Sample ID: LCS 680-305221/6
Matrix: Water
Analysis Batch: 305221

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Alkalinity	250	238		mg/L		95	80 - 120	

Lab Sample ID: LCSD 680-305221/32
Matrix: Water
Analysis Batch: 305221

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits		RPD Limit
Alkalinity	250	221		mg/L		86	80 - 120		7 30

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Method: 325.2 - Chloride

Lab Sample ID: MB 680-304432/39
Matrix: Water
Analysis Batch: 304432

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			11/21/13 11:05	1

Lab Sample ID: LCS 680-304432/19
Matrix: Water
Analysis Batch: 304432

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.9		mg/L		100	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-303116/13
Matrix: Water
Analysis Batch: 303116

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/13/13 16:17	1

Lab Sample ID: LCS 680-303116/14
Matrix: Water
Analysis Batch: 303116

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.497	0.499		mg/L		100	90 - 110
Nitrate Nitrite as N	0.997	1.00		mg/L		101	90 - 110
Nitrite as N	0.500	0.504		mg/L		101	90 - 110

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-304073/25
Matrix: Water
Analysis Batch: 304073

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			11/19/13 15:45	1

Lab Sample ID: LCS 680-304073/28
Matrix: Water
Analysis Batch: 304073

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.1		mg/L		101	75 - 125

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Method: 415.1 - DOC

Lab Sample ID: MB 680-304592/2-A
Matrix: Water
Analysis Batch: 304878

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Dissolved Organic Carbon	1.0	U	1.0		mg/L			11/22/13 19:46	1

Lab Sample ID: LCS 680-304592/1-A
Matrix: Water
Analysis Batch: 304878

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	18.8		mg/L		94	80 - 120

Method: 415.1 - TOC

Lab Sample ID: MB 680-304875/26
Matrix: Water
Analysis Batch: 304875

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Organic Carbon	1.0	U	1.0		mg/L			11/23/13 00:57	1

Lab Sample ID: LCS 680-304875/34
Matrix: Water
Analysis Batch: 304875

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	18.7		mg/L		94	80 - 120

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

GC/MS VOA

Analysis Batch: 304112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-3	4Q13 CPA Trip Blank	Total/NA	Water	8260B	
LCS 680-304112/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304112/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304112/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 304391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total/NA	Water	8260B	
LCS 680-304391/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304391/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304391/8	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 303419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total/NA	Water	RSK-175	
LCS 680-303419/11	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-303419/9	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-303419/10	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-303419/12	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-303419/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 303079

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total Recoverable	Water	3005A	
LCS 680-303079/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-303079/1-A	Method Blank	Total Recoverable	Water	3005A	

Prep Batch: 303335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-2	CPA-A-SHU-F(0.2)-1113	Dissolved	Water	3005A	
LCS 680-303335/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-303335/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 303420

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total Recoverable	Water	6010C	303079
LCS 680-303079/2-A	Lab Control Sample	Total Recoverable	Water	6010C	303079
MB 680-303079/1-A	Method Blank	Total Recoverable	Water	6010C	303079

Analysis Batch: 303580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-2	CPA-A-SHU-F(0.2)-1113	Dissolved	Water	6010C	303335
LCS 680-303335/2-A	Lab Control Sample	Total Recoverable	Water	6010C	303335
MB 680-303335/1-A	Method Blank	Total Recoverable	Water	6010C	303335

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

General Chemistry

Analysis Batch: 303116

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total/NA	Water	353.2	
LCS 680-303116/14	Lab Control Sample	Total/NA	Water	353.2	
MB 680-303116/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 304073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total/NA	Water	375.4	
LCS 680-304073/28	Lab Control Sample	Total/NA	Water	375.4	
MB 680-304073/25	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 304432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total/NA	Water	325.2	
LCS 680-304432/19	Lab Control Sample	Total/NA	Water	325.2	
MB 680-304432/39	Method Blank	Total/NA	Water	325.2	

Filtration Batch: 304592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-304592/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
MB 680-304592/2-A	Method Blank	Dissolved	Water	FILTRATION	

Analysis Batch: 304875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total/NA	Water	415.1	
LCS 680-304875/34	Lab Control Sample	Total/NA	Water	415.1	
MB 680-304875/26	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 304878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-2	CPA-A-SHU-F(0.2)-1113	Dissolved	Water	415.1	
LCS 680-304592/1-A	Lab Control Sample	Dissolved	Water	415.1	304592
MB 680-304592/2-A	Method Blank	Dissolved	Water	415.1	304592

Analysis Batch: 305221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96111-1	CPA-A-SHU-1113	Total/NA	Water	310.1	
LCS 680-305221/6	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-305221/32	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-305221/5	Method Blank	Total/NA	Water	310.1	

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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Client Sample ID: CPA-A-SHU-1113

Lab Sample ID: 680-96111-1

Date Collected: 11/12/13 14:15

Matrix: Water

Date Received: 11/13/13 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6260B		50	304391	11/21/13 15:08	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	303419	11/15/13 15:09	AJMC	TAL SAV
Total Recoverable	Prep	3005A			303079	11/13/13 15:13	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	303420	11/14/13 18:47	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303116	11/13/13 16:35	CRW	TAL SAV
Total/NA	Analysis	375.4		20	304073	11/19/13 16:07	JME	TAL SAV
Total/NA	Analysis	325.2		1	304432	11/21/13 09:28	JME	TAL SAV
Total/NA	Analysis	415.1		1	304875	11/23/13 08:00	CMP	TAL SAV
Total/NA	Analysis	310.1		1	305221	11/26/13 13:26	LBH	TAL SAV

Client Sample ID: CPA-A-SHU-F(0.2)-1113

Lab Sample ID: 680-96111-2

Date Collected: 11/12/13 14:15

Matrix: Water

Date Received: 11/13/13 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Dissolved	Analysis	6010C		1	303580	11/16/13 07:42	BCB	TAL SAV
Dissolved	Analysis	415.1		1	304878	11/22/13 21:13	CMP	TAL SAV

Client Sample ID: 4Q13 CPA Trip Blank

Lab Sample ID: 680-96111-3

Date Collected: 11/12/13 00:00

Matrix: Water

Date Received: 11/13/13 09:36

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6260B		1	304112	11/20/13 10:24	JD1	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

DEC 10 2013

TestAmerica Savannah

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-96111-1

SDG Number: KPS102

Login Number: 96111

List Source: TestAmerica Savannah

List Number: 1

Creator: Banda, Christy S

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96111-1
SDG: KPS102

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-15
A2LA	ISO/IEC 17025		399.01	02-28-15
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	88-0692	02-01-14
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-13 *
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	12-31-13 *
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	06-17-14
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-13 *
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky	State Program	4	90084	12-31-13 *
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	30690	06-30-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-13 *
Massachusetts	State Program	1	M-GA006	06-30-14 *
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-14 *
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	04-01-14
North Carolina DENR	State Program	4	269	12-31-13 *
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	01-01-14 *
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia	State Program	3	9950C	12-31-13 *
West Virginia DEP	State Program	3	94	06-30-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

DEC 10 2013

TestAmerica Savannah

4Q 2013 CPA Data Review

Laboratory SDG: KPS103

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 12/11/2013

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008. USEPA National Functional Guidelines for Superfund Inorganic Data Review 2010

Work Plan: Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009)

Sample Identification	
CPA-A-MHU-1113	CPA-A-MHU-F(0.2)-1113
CPA-A-DHU-1113	CPA-A-DHU-F(0.2)-1113
CPA-B-SHU-1113	CPA-B-SHU-F(0.2)-1113
CPA-B-MHU-1113	CPA-B-MHU-F(0.2)-1113
CPA-B-MHU-1113-EB	4Q13 Trip Blank #2
CPA-B-DHU-1113	CPA-B-DHU-F(0.2)1113

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated the VOC surrogate recovery for dibromofluoromethane was outside evaluation criteria in sample 4Q13 CPA Trip Blank #2. The benzene MSD recovery was outside evaluation criteria in sample CPA-A-MHU-1113. Samples were diluted to high levels of target analytes. Although not indicated in the laboratory case narrative, chlorobenzene was detected in the equipment blank. These issues are addressed further in the appropriate sections below.

The cooler receipt form indicated that two of two coolers were received by the laboratory at temperatures of 0.2°C and 0.6°C, which are outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required. Two out of three VOA vials for matrix spike sample CPA-A-MHU-1113 MS were received by the laboratory with headspace. The remaining vials without headspace contained sufficient sample to complete all requested analyses; therefore no qualification of data was required.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

Yes

Blank ID	Parameter	Analyte	Concentration/Amount
CPA-B-MHU-1113-EB	VOCs	Chlorobenzene	5.0 ug/L

Analytical data reported non-detect or at concentrations greater than five times (5X) the associated blank concentration did not require qualification. No qualification of data was required.

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

Yes

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

No

Sample ID	Parameter	Surrogate	Recovery	Criteria
4Q13 CPA Trip Blank #2	VOCs	Dibromofluoromethane	131	70-130

Analytical data reported as non-detect and associated with surrogate recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. Sample 4Q13 CPA Trip Blank #2 is a quality control sample and is not qualified. No qualification of data was required.

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

Yes, sample CPA-A-MHU-1113 was spiked and analyzed for VOCs, and although not requested, sulfate. Although not requested, sample CPA-B-SHU-1113 was spiked and analyzed for nitrogen, sample CPA-B-SHU-F(0.2)-1113 was spiked and analyzed for dissolved organic carbon, and sample CPA-A-DHU-1113 was spiked and analyzed for total organic carbon.

Were MS/MSD recoveries within evaluation criteria?

No

MS/MSD ID	Parameter	Analyte	MS/MSD Recovery (%)	RPD	MS/MSD/ RPD Criteria
CPA-A-MHU-1113	VOCs	Benzene	82/67	6	74-123/30

USEPA National Functional Guidelines for Organic Data Review indicates that organic data does not require qualification based on MS/MSD data alone and LCS recoveries were within evaluation criteria. No qualification of data was required.

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

Yes

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

Yes, sample CPA-A-DHU-1113 was duplicated and analyzed for sulfate, and CPA-B-SHU-1113 was duplicated and analyzed for total organic carbon.

Were laboratory duplicate sample RPDs within criteria?

Yes

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

No

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; analytes were detected in samples that were diluted.

12.0 Additional Qualifications

Were additional qualifications applied?

No

SDG KPS103

Results of Samples from Monitoring Wells:

CPA-A-MHU
CPA-A-DHU
CPA-B-SHU
CPA-B-MHU
CPA-B-DHU

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-96178-1
TestAmerica Sample Delivery Group: KPS103
Client Project/Site: WGK - CPA GW 4Q13

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele Kersey

Authorized for release by:
11/27/2013 4:38:31 PM

Michele Kersey, Project Manager I
(912)354-7858
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The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Reviewed on
DEC 11 2013
MM

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DEC 11 2013

MM

Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Job ID: 680-96178-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: WGK - CPA GW 4Q13

Report Number: 680-96178-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/14/2013 9:42 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.2° C and 0.6° C.

Except:

Method(s) 8260B: The following sample(s) was received with headspace in the sample vial: 2 of 3 vials for -1MS contains headspace CPA-A-MHU-1113 MS (680-96178-1 MS).

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples CPA-A-MHU-1113 (680-96178-1), CPA-A-DHU-1113 (680-96178-3), CPA-B-SHU-1113 (680-96178-5), CPA-B-MHU-1113 (680-96178-7), CPA-B-MHU-1113-EB (680-96178-9), 4Q13 CPA Trip Blank #2 (680-96178-10) and CPA-B-DHU-1113 (680-96178-11) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/20/2013 and 11/21/2013.

Surrogate recovery for the following sample was outside the upper control limit: 4Q13 CPA Trip Blank #2 (680-96178-10). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

A full list spike was utilized for this method. Due to the large number of spiked analytes, there is a high probability that one or more analytes will recover outside acceptance limits. The MSD associated with batch 304112 had one analyte outside control limits; therefore, re-analysis was not performed. These results have been reported and qualified.

Refer to the QC report for details.

Samples CPA-A-MHU-1113 (680-96178-1)[5X], CPA-A-DHU-1113 (680-96178-3)[5X], CPA-B-SHU-1113 (680-96178-5)[200X], CPA-B-MHU-1113 (680-96178-7)[1000X] and CPA-B-DHU-1113 (680-96178-11)[500X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the volatiles analysis.

All other quality control parameters were within the acceptance limits.

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TestAmerica Savannah

Case Narrative

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Job ID: 680-96178-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

DISSOLVED GASES

Samples CPA-A-MHU-1113 (680-96178-1), CPA-A-DHU-1113 (680-96178-3), CPA-B-SHU-1113 (680-96178-5), CPA-B-MHU-1113 (680-96178-7) and CPA-B-DHU-1113 (680-96178-11) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/19/2013.

No difficulties were encountered during the dissolved gases analysis.

All quality control parameters were within the acceptance limits.

METALS (ICP)

Samples CPA-A-MHU-F(0.2)-1113 (680-96178-2), CPA-A-DHU-F(0.2)-1113 (680-96178-4), CPA-B-SHU-F(0.2)-1113 (680-96178-6), CPA-B-MHU-F(0.2)-1113 (680-96178-8) and CPA-B-DHU-F(0.2)-1113 (680-96178-12) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/14/2013 and analyzed on 11/16/2013.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

METALS (ICP)

Samples CPA-A-MHU-1113 (680-96178-1), CPA-A-DHU-1113 (680-96178-3), CPA-B-SHU-1113 (680-96178-5), CPA-B-MHU-1113 (680-96178-7) and CPA-B-DHU-1113 (680-96178-11) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/14/2013 and analyzed on 11/16/2013.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

ALKALINITY

Samples CPA-A-MHU-1113 (680-96178-1), CPA-A-DHU-1113 (680-96178-3), CPA-B-SHU-1113 (680-96178-5), CPA-B-MHU-1113 (680-96178-7) and CPA-B-DHU-1113 (680-96178-11) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/26/2013.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

CHLORIDE

Samples CPA-A-MHU-1113 (680-96178-1), CPA-A-DHU-1113 (680-96178-3), CPA-B-SHU-1113 (680-96178-5), CPA-B-MHU-1113 (680-96178-7) and CPA-B-DHU-1113 (680-96178-11) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/21/2013.

Samples CPA-B-SHU-1113 (680-96178-5)[2X] and CPA-B-MHU-1113 (680-96178-7)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the chloride analysis.

All quality control parameters were within the acceptance limits.

NITRATE-NITRITE AS NITROGEN

Samples CPA-A-MHU-1113 (680-96178-1), CPA-A-DHU-1113 (680-96178-3), CPA-B-SHU-1113 (680-96178-5), CPA-B-MHU-1113 (680-96178-7) and CPA-B-DHU-1113 (680-96178-11) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/14/2013.

No difficulties were encountered during the nitrate-nitrite analysis.

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TestAmerica Savannah

Case Narrative

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Job ID: 680-96178-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

All quality control parameters were within the acceptance limits.

SULFATE

Samples CPA-A-MHU-1113 (680-96178-1), CPA-A-DHU-1113 (680-96178-3), CPA-B-SHU-1113 (680-96178-5), CPA-B-MHU-1113 (680-96178-7) and CPA-B-DHU-1113 (680-96178-11) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/25/2013.

Samples CPA-A-MHU-1113 (680-96178-1)[5X], CPA-A-DHU-1113 (680-96178-3)[5X], CPA-B-SHU-1113 (680-96178-5)[10X], CPA-B-MHU-1113 (680-96178-7)[5X] and CPA-B-DHU-1113 (680-96178-11)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the sulfate analysis.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON

Samples CPA-A-MHU-1113 (680-96178-1), CPA-A-DHU-1113 (680-96178-3), CPA-B-SHU-1113 (680-96178-5), CPA-B-MHU-1113 (680-96178-7) and CPA-B-DHU-1113 (680-96178-11) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/23/2013.

No difficulties were encountered during the TOC analysis.

All quality control parameters were within the acceptance limits.

DISSOLVED ORGANIC CARBON (DOC)

Samples CPA-A-MHU-F(0.2)-1113 (680-96178-2), CPA-A-DHU-F(0.2)-1113 (680-96178-4), CPA-B-SHU-F(0.2)-1113 (680-96178-6), CPA-B-MHU-F(0.2)-1113 (680-96178-8) and CPA-B-DHU-F(0.2)-1113 (680-96178-12) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 11/23/2013 and 11/26/2013.

No difficulties were encountered during the DOC analysis.

All quality control parameters were within the acceptance limits.

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Sample Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-96178-1	CPA-A-MHU-1113 ✓	Water	11/13/13 10:05	11/14/13 09:42
680-96178-2	CPA-A-MHU-F(0.2)-1113 ✓	Water	11/13/13 10:05	11/14/13 09:42
680-96178-3	CPA-A-DHU-1113 ✓	Water	11/13/13 11:35	11/14/13 09:42
680-96178-4	CPA-A-DHU-F(0.2)-1113 ✓	Water	11/13/13 11:35	11/14/13 09:42
680-96178-5	CPA-B-SHU-1113 ✓	Water	11/13/13 13:45	11/14/13 09:42
680-96178-6	CPA-B-SHU-F(0.2)-1113 ✓	Water	11/13/13 13:45	11/14/13 09:42
680-96178-7	CPA-B-MHU-1113 ✓	Water	11/13/13 14:50	11/14/13 09:42
680-96178-8	CPA-B-MHU-F(0.2)-1113 ✓	Water	11/13/13 14:50	11/14/13 09:42
680-96178-9	CPA-B-MHU-1113-EB ✓	Water	11/13/13 14:05	11/14/13 09:42
680-96178-10	4Q13 CPA Trip Blank #2 ✓	Water	11/13/13 00:00	11/14/13 09:42
680-96178-11	CPA-B-DHU-1113 ✓	Water	11/13/13 16:05	11/14/13 09:42
680-96178-12	CPA-B-DHU-F(0.2)-1113 ✓	Water	11/13/13 16:05	11/14/13 09:42

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TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

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TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits
F	MS/MSD Recovery and/or RPD exceeds the control limits

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
■	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

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TestAmerica Savannah

Detection Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-A-MHU-1113

Lab Sample ID: 680-96178-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	410		5.0		ug/L	5		8260B	Total/NA
Chlorobenzene	210		5.0		ug/L	5		8260B	Total/NA
Ethane	13		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	17000		390		ug/L	1		RSK-175	Total/NA
Iron	1.7		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.76		0.010		mg/L	1		6010C	Total Recoverable
Chloride	32		1.0		mg/L	1		325.2	Total/NA
Total Organic Carbon	7.2		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	600		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	29		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-A-MHU-F(0.2)-1113

Lab Sample ID: 680-96178-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	1.9		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.89		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	6.7		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-A-DHU-1113

Lab Sample ID: 680-96178-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	120		5.0		ug/L	5		8260B	Total/NA
Chlorobenzene	330		5.0		ug/L	5		8260B	Total/NA
1,2-Dichlorobenzene	460		5.0		ug/L	5		8260B	Total/NA
1,3-Dichlorobenzene	54		5.0		ug/L	5		8260B	Total/NA
1,4-Dichlorobenzene	470		5.0		ug/L	5		8260B	Total/NA
Ethane	3.9		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	2900		390		ug/L	1		RSK-175	Total/NA
Iron	6.6		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.35		0.010		mg/L	1		6010C	Total Recoverable
Chloride	54		1.0		mg/L	1		325.2	Total/NA
Sulfate	93		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	4.3		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	450		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	24		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-A-DHU-F(0.2)-1113

Lab Sample ID: 680-96178-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	5.7		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.30		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	4.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-B-SHU-1113

Lab Sample ID: 680-96178-5

This Detection Summary does not include radiochemical test results.

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Detection Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-SHU-1113 (Continued)

Lab Sample ID: 680-96178-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	29000		200		ug/L	200		8260B	Total/NA
1,2-Dichlorobenzene	220		200		ug/L	200		8260B	Total/NA
1,4-Dichlorobenzene	320		200		ug/L	200		8260B	Total/NA
Methane	110		0.58		ug/L	1		RSK-175	Total/NA
Iron	43		0.050		mg/L	1		6010C	Total Recoverable
Manganese	3.4		0.010		mg/L	1		6010C	Total Recoverable
Chloride	150		2.0		mg/L	2		325.2	Total/NA
Sulfate	290		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	3.5		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	510		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	220		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-B-SHU-F(0.2)-1113

Lab Sample ID: 680-96178-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	44		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	3.6		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	3.5		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-B-MHU-1113

Lab Sample ID: 680-96178-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	130000		1000		ug/L	1000		8260B	Total/NA
Chlorobenzene	41000		1000		ug/L	1000		8260B	Total/NA
Ethane	160		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	19000		390		ug/L	1		RSK-175	Total/NA
Iron	36		0.050		mg/L	1		6010C	Total Recoverable
Manganese	2.2		0.010		mg/L	1		6010C	Total Recoverable
Chloride	210		5.0		mg/L	5		325.2	Total/NA
Sulfate	72		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	18		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	410		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	170		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-B-MHU-F(0.2)-1113

Lab Sample ID: 680-96178-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	34		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	2.1		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	17		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-B-MHU-1113-EB

Lab Sample ID: 680-96178-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	5.0		1.0		ug/L	1		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

Detection Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: 4Q13 CPA Trip Blank #2

Lab Sample ID: 680-96178-10

No Detections.

Client Sample ID: CPA-B-DHU-1113

Lab Sample ID: 680-96178-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	520		500		ug/L	500		8260B	Total/NA
Chlorobenzene	39000		500		ug/L	500		8260B	Total/NA
1,2-Dichlorobenzene	23000		500		ug/L	500		8260B	Total/NA
1,3-Dichlorobenzene	1800		500		ug/L	500		8260B	Total/NA
1,4-Dichlorobenzene	35000		500		ug/L	500		8260B	Total/NA
Methane	30		0.58		ug/L	1		RSK-175	Total/NA
Iron	9.6		0.050		mg/L	1		6010C	Total
									Recoverable
Manganese	0.55		0.010		mg/L	1		6010C	Total
									Recoverable
Chloride	65		1.0		mg/L	1		325.2	Total/NA
Sulfate	100		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	5.2		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	330		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	21		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-B-DHU-F(0.2)-1113

Lab Sample ID: 680-96178-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	9.2		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.53		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	5.4		1.0		mg/L	1		415.1	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-A-MHU-1113

Lab Sample ID: 680-96178-1

Date Collected: 11/13/13 10:05

Matrix: Water

Date Received: 11/14/13 09:42

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	410		5.0		ug/L			11/20/13 17:35	5
Chlorobenzene	210		5.0		ug/L			11/20/13 17:35	5
1,2-Dichlorobenzene	5.0	U	5.0		ug/L			11/20/13 17:35	5
1,3-Dichlorobenzene	5.0	U	5.0		ug/L			11/20/13 17:35	5
1,4-Dichlorobenzene	5.0	U	5.0		ug/L			11/20/13 17:35	5

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	97		70 - 130					11/20/13 17:35	5
Dibromofluoromethane	102		70 - 130					11/20/13 17:35	5
Toluene-d8 (Surr)	99		70 - 130					11/20/13 17:35	5

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	13		1.1		ug/L			11/19/13 15:47	1
Ethylene	1.0	U	1.0		ug/L			11/19/13 15:47	1
Methane (TCD)	17000		390		ug/L			11/19/13 15:47	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	1.7		0.050		mg/L		11/14/13 17:25	11/16/13 08:42	1
Manganese	0.76		0.010		mg/L		11/14/13 17:25	11/16/13 08:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	32		1.0		mg/L			11/21/13 09:35	1
Nitrate as N	0.050	U	0.050		mg/L			11/14/13 17:37	1
Sulfate	25	U	25		mg/L			11/25/13 12:03	5
Total Organic Carbon	7.2		1.0		mg/L			11/23/13 10:45	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	600		5.0		mg/L			11/26/13 22:34	1
Carbon Dioxide, Free	29		5.0		mg/L			11/26/13 22:34	1

TestAmerica Savannah

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-A-MHU-F(0.2)-1113

Lab Sample ID: 680-96178-2

Date Collected: 11/13/13 10:05

Matrix: Water

Date Received: 11/14/13 09:42

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	1.9		0.050		mg/L		11/14/13 17:25	11/16/13 08:47	1
Manganese, Dissolved	0.89		0.010		mg/L		11/14/13 17:25	11/16/13 08:47	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	6.7		1.0		mg/L			11/23/13 02:22	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-A-DHU-1113

Lab Sample ID: 680-96178-3

Date Collected: 11/13/13 11:35

Matrix: Water

Date Received: 11/14/13 09:42

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	120		5.0		ug/L			11/21/13 15:39	5
Chlorobenzene	330		5.0		ug/L			11/21/13 15:39	5
1,2-Dichlorobenzene	460		5.0		ug/L			11/21/13 15:39	5
1,3-Dichlorobenzene	54		5.0		ug/L			11/21/13 15:39	5
1,4-Dichlorobenzene	470		5.0		ug/L			11/21/13 15:39	5

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	98		70 - 130					11/21/13 15:39	5
Dibromofluoromethane	93		70 - 130					11/21/13 15:39	5
Toluene-d8 (Surr)	102		70 - 130					11/21/13 15:39	5

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	3.9		1.1		ug/L			11/19/13 16:00	1
Ethylene	1.0	U	1.0		ug/L			11/19/13 16:00	1
Methane (TCD)	2900		390		ug/L			11/19/13 16:00	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	6.6		0.050		mg/L		11/14/13 17:25	11/16/13 08:51	1
Manganese	0.35		0.010		mg/L		11/14/13 17:25	11/16/13 08:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	54		1.0		mg/L			11/21/13 09:35	1
Nitrate as N	0.050	U	0.050		mg/L			11/14/13 17:38	1
Sulfate	93		25		mg/L			11/25/13 12:05	5
Total Organic Carbon	4.3		1.0		mg/L			11/23/13 11:16	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	450		5.0		mg/L			11/26/13 22:48	1
Carbon Dioxide, Free	24		5.0		mg/L			11/26/13 22:48	1

TestAmerica Savannah

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-A-DHU-F(0.2)-1113

Lab Sample ID: 680-96178-4

Date Collected: 11/13/13 11:35

Matrix: Water

Date Received: 11/14/13 09:42

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	5.7		0.050		mg/L		11/14/13 17:25	11/16/13 09:05	1
Manganese, Dissolved	0.30		0.010		mg/L		11/14/13 17:25	11/16/13 09:05	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	4.5		1.0		mg/L			11/23/13 02:37	1

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DEC 11 2013

[Handwritten signature]

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-SHU-1113

Lab Sample ID: 680-96178-5

Date Collected: 11/13/13 13:45

Matrix: Water

Date Received: 11/14/13 09:42

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	200	U	200		ug/L			11/20/13 13:42	200
Chlorobenzene	29000		200		ug/L			11/20/13 13:42	200
1,2-Dichlorobenzene	220		200		ug/L			11/20/13 13:42	200
1,3-Dichlorobenzene	200	U	200		ug/L			11/20/13 13:42	200
1,4-Dichlorobenzene	320		200		ug/L			11/20/13 13:42	200
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	107		70 - 130					11/20/13 13:42	200
Dibromofluoromethane	123		70 - 130					11/20/13 13:42	200
Toluene-d8 (Surr)	98		70 - 130					11/20/13 13:42	200

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/19/13 16:13	1
Ethylene	1.0	U	1.0		ug/L			11/19/13 16:13	1
Methane	110		0.58		ug/L			11/19/13 16:13	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	43		0.050		mg/L		11/14/13 17:25	11/16/13 09:10	1
Manganese	3.4		0.010		mg/L		11/14/13 17:25	11/16/13 09:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150		2.0		mg/L			11/21/13 10:43	2
Nitrate as N	0.050	U	0.050		mg/L			11/14/13 17:42	1
Sulfate	290		50		mg/L			11/25/13 12:11	10
Total Organic Carbon	3.5		1.0		mg/L			11/23/13 11:58	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	510		5.0		mg/L			11/26/13 21:45	1
Carbon Dioxide, Free	220		5.0		mg/L			11/26/13 21:45	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-SHU-F(0.2)-1113

Lab Sample ID: 680-96178-6

Date Collected: 11/13/13 13:45

Matrix: Water

Date Received: 11/14/13 09:42

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	44		0.050		mg/L		11/14/13 17:25	11/16/13 09:15	1
Manganese, Dissolved	3.6		0.010		mg/L		11/14/13 17:25	11/16/13 09:15	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	3.5		1.0		mg/L			11/26/13 09:47	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-MHU-1113

Lab Sample ID: 680-96178-7

Date Collected: 11/13/13 14:50

Matrix: Water

Date Received: 11/14/13 09:42

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	130000		1000		ug/L			11/20/13 14:04	1000
Chlorobenzene	41000		1000		ug/L			11/20/13 14:04	1000
1,2-Dichlorobenzene	1000	U	1000		ug/L			11/20/13 14:04	1000
1,3-Dichlorobenzene	1000	U	1000		ug/L			11/20/13 14:04	1000
1,4-Dichlorobenzene	1000	U	1000		ug/L			11/20/13 14:04	1000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	107		70 - 130		11/20/13 14:04	1000
Dibromofluoromethane	128		70 - 130		11/20/13 14:04	1000
Toluene-d8 (Surr)	102		70 - 130		11/20/13 14:04	1000

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	160		1.1		ug/L			11/19/13 16:26	1
Ethylene	1.0	U	1.0		ug/L			11/19/13 16:26	1
Methane (TCD)	19000		390		ug/L			11/19/13 16:26	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	36		0.050		mg/L		11/14/13 17:25	11/16/13 09:19	1
Manganese	2.2		0.010		mg/L		11/14/13 17:25	11/16/13 09:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	210		5.0		mg/L			11/21/13 10:51	5
Nitrate as N	0.050	U	0.050		mg/L			11/14/13 17:48	1
Sulfate	72		25		mg/L			11/25/13 12:07	5
Total Organic Carbon	18		1.0		mg/L			11/23/13 12:29	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	410		5.0		mg/L			11/26/13 22:00	1
Carbon Dioxide, Free	170		5.0		mg/L			11/26/13 22:00	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-MHU-F(0.2)-1113

Lab Sample ID: 680-96178-8

Date Collected: 11/13/13 14:50

Matrix: Water

Date Received: 11/14/13 09:42

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	34		0.050		mg/L		11/14/13 17:25	11/16/13 09:24	1
Manganese, Dissolved	2.1		0.010		mg/L		11/14/13 17:25	11/16/13 09:24	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	17		1.0		mg/L			11/23/13 02:51	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-MHU-1113-EB

Lab Sample ID: 680-96178-9

Date Collected: 11/13/13 14:05

Matrix: Water

Date Received: 11/14/13 09:42

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 11:52	1
Chlorobenzene	5.0		1.0		ug/L			11/20/13 11:52	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:52	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:52	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	105		70 - 130		11/20/13 11:52	1
Dibromofluoromethane	119		70 - 130		11/20/13 11:52	1
Toluene-d8 (Surr)	98		70 - 130		11/20/13 11:52	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: 4Q13 CPA Trip Blank #2

Lab Sample ID: 680-96178-10

Date Collected: 11/13/13 00:00

Matrix: Water

Date Received: 11/14/13 09:42

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 10:45	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 10:45	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 10:45	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 10:45	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 10:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	103		70 - 130		11/20/13 10:45	1
Dibromofluoromethane	131	X	70 - 130		11/20/13 10:45	1
Toluene-d8 (Surr)	97		70 - 130		11/20/13 10:45	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-DHU-1113

Lab Sample ID: 680-96178-11

Date Collected: 11/13/13 16:05

Matrix: Water

Date Received: 11/14/13 09:42

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	520		500		ug/L			11/20/13 14:27	500
Chlorobenzene	39000		500		ug/L			11/20/13 14:27	500
1,2-Dichlorobenzene	23000		500		ug/L			11/20/13 14:27	500
1,3-Dichlorobenzene	1800		500		ug/L			11/20/13 14:27	500
1,4-Dichlorobenzene	35000		500		ug/L			11/20/13 14:27	500
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	100		70 - 130					11/20/13 14:27	500
Dibromofluoromethane	123		70 - 130					11/20/13 14:27	500
Toluene-d8 (Surr)	97		70 - 130					11/20/13 14:27	500

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/19/13 16:39	1
Ethylene	1.0	U	1.0		ug/L			11/19/13 16:39	1
Methane	30		0.58		ug/L			11/19/13 16:39	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	9.6		0.050		mg/L		11/14/13 17:25	11/16/13 09:29	1
Manganese	0.55		0.010		mg/L		11/14/13 17:25	11/16/13 09:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	65		1.0		mg/L			11/21/13 09:53	1
Nitrate as N	0.050	U	0.050		mg/L			11/14/13 17:49	1
Sulfate	100		25		mg/L			11/25/13 12:07	5
Total Organic Carbon	5.2		1.0		mg/L			11/23/13 12:43	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	330		5.0		mg/L			11/26/13 22:24	1
Carbon Dioxide, Free	21		5.0		mg/L			11/26/13 22:24	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-DHU-F(0.2)-1113

Lab Sample ID: 680-96178-12

Date Collected: 11/13/13 16:05

Matrix: Water

Date Received: 11/14/13 09:42

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	9.2		0.050		mg/L		11/14/13 17:25	11/16/13 09:33	1
Manganese, Dissolved	0.53		0.010		mg/L		11/14/13 17:25	11/16/13 09:33	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	5.4		1.0		mg/L			11/26/13 10:34	1

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Surrogate Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (70-130)	DBFM (70-130)	TOL (70-130)
680-96178-1	CPA-A-MHU-1113	97	102	99
680-96178-1MS	CPA-A-MHU-1113 MS	101	118	112
680-96178-1MSD	CPA-A-MHU-1113 MSD	100	112	106
680-96178-3	CPA-A-DHU-1113	98	93	102
680-96178-5	CPA-B-SHU-1113	107	123	98
680-96178-7	CPA-B-MHU-1113	107	128	102
680-96178-9	CPA-B-MHU-1113-EB	105	119	98
680-96178-10	4Q13 CPA Trip Blank #2	103	131 X	97
680-96178-11	CPA-B-DHU-1113	100	123	97
LCS 680-304112/3	Lab Control Sample	107	125	103
LCS 680-304117/4	Lab Control Sample	92	108	101
LCS 680-304391/4	Lab Control Sample	87	94	101
LCSD 680-304112/4	Lab Control Sample Dup	110	118	103
LCSD 680-304117/5	Lab Control Sample Dup	93	109	107
LCSD 680-304391/5	Lab Control Sample Dup	89	97	102
MB 680-304112/7	Method Blank	104	127	95
MB 680-304117/8	Method Blank	94	117	97
MB 680-304391/8	Method Blank	91	108	96

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TOL = Toluene-d8 (Surr)

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-304112/7

Matrix: Water

Analysis Batch: 304112

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1

Surrogate	MB MB		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
4-Bromofluorobenzene	104		70 - 130		11/20/13 09:53	1
Dibromofluoromethane	127		70 - 130		11/20/13 09:53	1
Toluene-d8 (Surr)	95		70 - 130		11/20/13 09:53	1

Lab Sample ID: LCS 680-304112/3

Matrix: Water

Analysis Batch: 304112

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzene	50.0	50.6		ug/L		101	74 - 123
Chlorobenzene	50.0	53.9		ug/L		108	79 - 120
1,2-Dichlorobenzene	50.0	50.5		ug/L		101	77 - 124
1,3-Dichlorobenzene	50.0	48.9		ug/L		98	79 - 123
1,4-Dichlorobenzene	50.0	51.5		ug/L		103	76 - 124

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	107		70 - 130
Dibromofluoromethane	125		70 - 130
Toluene-d8 (Surr)	103		70 - 130

Lab Sample ID: LCSD 680-304112/4

Matrix: Water

Analysis Batch: 304112

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD LCSD		Unit	D	%Rec	%Rec. Limits	RPD	
		Result	Qualifier					RPD	Limit
Benzene	50.0	51.6		ug/L		103	74 - 123	2	30
Chlorobenzene	50.0	50.9		ug/L		102	79 - 120	6	30
1,2-Dichlorobenzene	50.0	51.6		ug/L		103	77 - 124	2	30
1,3-Dichlorobenzene	50.0	50.2		ug/L		100	79 - 123	3	30
1,4-Dichlorobenzene	50.0	51.7		ug/L		103	76 - 124	0	30

Surrogate	LCSD LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	110		70 - 130
Dibromofluoromethane	118		70 - 130
Toluene-d8 (Surr)	103		70 - 130

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QC Sample Results

Client: Solutia Inc.
Project/Site: WKG - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 680-96178-1MS

Client Sample ID: CPA-A-MHU-1113 MS

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 304112

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	490		250	698		ug/L		82	74 - 123
Chlorobenzene	240		250	457		ug/L		85	79 - 120
1,2-Dichlorobenzene	5.0		250	221		ug/L		87	77 - 124
1,3-Dichlorobenzene	5.0		250	228		ug/L		91	79 - 123
1,4-Dichlorobenzene	29		250	230		ug/L		80	76 - 124

Surrogate	MS %Recovery	MS Qualifier	MS Limits
4-Bromofluorobenzene	101		70 - 130
Dibromofluoromethane	118		70 - 130
Toluene-d8 (Surr)	112		70 - 130

Lab Sample ID: 680-96178-1MSD

Client Sample ID: CPA-A-MHU-1113 MSD

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 304112

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	490		250	659	F	ug/L		67	74 - 123	6	30
Chlorobenzene	240		250	459		ug/L		86	79 - 120	0	30
1,2-Dichlorobenzene	5.0		250	232		ug/L		91	77 - 124	5	30
1,3-Dichlorobenzene	5.0		250	230		ug/L		92	79 - 123	1	30
1,4-Dichlorobenzene	29		250	239		ug/L		84	76 - 124	4	30

Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits
4-Bromofluorobenzene	100		70 - 130
Dibromofluoromethane	112		70 - 130
Toluene-d8 (Surr)	106		70 - 130

Lab Sample ID: MB 680-304117/8

Client Sample ID: Method Blank

Matrix: Water

Prep Type: Total/NA

Analysis Batch: 304117

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 12:40	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 12:40	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 12:40	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 12:40	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 12:40	1

Surrogate	MB %Recovery	MB Qualifier	MB Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	94		70 - 130		11/20/13 12:40	1
Dibromofluoromethane	117		70 - 130		11/20/13 12:40	1
Toluene-d8 (Surr)	97		70 - 130		11/20/13 12:40	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-304117/4

Matrix: Water

Analysis Batch: 304117

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	50.8		ug/L		102	74 - 123
Chlorobenzene	50.0	51.8		ug/L		104	79 - 120
1,2-Dichlorobenzene	50.0	43.1		ug/L		86	77 - 124
1,3-Dichlorobenzene	50.0	43.6		ug/L		87	79 - 123
1,4-Dichlorobenzene	50.0	44.5		ug/L		89	76 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	92		70 - 130
Dibromofluoromethane	108		70 - 130
Toluene-d8 (Surr)	101		70 - 130

Lab Sample ID: LCSD 680-304117/5

Matrix: Water

Analysis Batch: 304117

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	54.4		ug/L		109	74 - 123	7	30
Chlorobenzene	50.0	54.1		ug/L		108	79 - 120	4	30
1,2-Dichlorobenzene	50.0	45.5		ug/L		91	77 - 124	5	30
1,3-Dichlorobenzene	50.0	44.6		ug/L		89	79 - 123	2	30
1,4-Dichlorobenzene	50.0	46.0		ug/L		92	76 - 124	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	93		70 - 130
Dibromofluoromethane	109		70 - 130
Toluene-d8 (Surr)	107		70 - 130

Lab Sample ID: MB 680-304391/8

Matrix: Water

Analysis Batch: 304391

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
Chlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	91		70 - 130		11/21/13 13:38	1
Dibromofluoromethane	108		70 - 130		11/21/13 13:38	1
Toluene-d8 (Surr)	96		70 - 130		11/21/13 13:38	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 680-304391/4

Matrix: Water

Analysis Batch: 304391

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Benzene	50.0	47.5		ug/L		95	74 - 123
Chlorobenzene	50.0	48.4		ug/L		97	79 - 120
1,2-Dichlorobenzene	50.0	43.3		ug/L		87	77 - 124
1,3-Dichlorobenzene	50.0	40.6		ug/L		81	79 - 123
1,4-Dichlorobenzene	50.0	41.8		ug/L		84	76 - 124

Surrogate	LCS		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	87		70 - 130
Dibromofluoromethane	94		70 - 130
Toluene-d8 (Surr)	101		70 - 130

Lab Sample ID: LCSD 680-304391/5

Matrix: Water

Analysis Batch: 304391

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD		Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
		Result	Qualifier						
Benzene	50.0	47.8		ug/L		96	74 - 123	0	30
Chlorobenzene	50.0	49.6		ug/L		99	79 - 120	2	30
1,2-Dichlorobenzene	50.0	43.4		ug/L		87	77 - 124	0	30
1,3-Dichlorobenzene	50.0	41.2		ug/L		82	79 - 123	1	30
1,4-Dichlorobenzene	50.0	42.1		ug/L		84	76 - 124	1	30

Surrogate	LCSD		Limits
	%Recovery	Qualifier	
4-Bromofluorobenzene	89		70 - 130
Dibromofluoromethane	97		70 - 130
Toluene-d8 (Surr)	102		70 - 130

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-303827/3

Matrix: Water

Analysis Batch: 303827

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Ethane	1.1	U	1.1		ug/L			11/19/13 13:21	1
Ethylene	1.0	U	1.0		ug/L			11/19/13 13:21	1
Methane	0.58	U	0.58		ug/L			11/19/13 13:21	1
Methane (TCD)	390	U	390		ug/L			11/19/13 13:21	1

Lab Sample ID: LCS 680-303827/4

Matrix: Water

Analysis Batch: 303827

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Ethane	268	346		ug/L		120	75 - 125
Ethylene	269	320		ug/L		119	75 - 125
Methane	154	176		ug/L		115	75 - 125

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 680-303827/6

Matrix: Water

Analysis Batch: 303827

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	2120		ug/L		110	75 - 125

Lab Sample ID: LCSD 680-303827/5

Matrix: Water

Analysis Batch: 303827

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	305		ug/L		106	75 - 125	13	30
Ethylene	269	283		ug/L		105	75 - 125	12	30
Methane	154	157		ug/L		102	75 - 125	12	30

Lab Sample ID: LCSD 680-303827/7

Matrix: Water

Analysis Batch: 303827

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	2120		ug/L		110	75 - 125	0	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-303335/1-A

Matrix: Water

Analysis Batch: 303580

Client Sample ID: Method Blank

Prep Type: Total Recoverable

Prep Batch: 303335

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/14/13 17:25	11/16/13 07:33	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/14/13 17:25	11/16/13 07:33	1
Manganese	0.010	U	0.010		mg/L		11/14/13 17:25	11/16/13 07:33	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/14/13 17:25	11/16/13 07:33	1

Lab Sample ID: LCS 680-303335/2-A

Matrix: Water

Analysis Batch: 303580

Client Sample ID: Lab Control Sample

Prep Type: Total Recoverable

Prep Batch: 303335

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Iron	5.00	4.94		mg/L		99	75 - 125
Iron, Dissolved	5.00	4.94		mg/L		99	75 - 125
Manganese	0.500	0.496		mg/L		99	75 - 125
Manganese, Dissolved	0.500	0.496		mg/L		99	75 - 125

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-305275/3

Matrix: Water

Analysis Batch: 305275

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			11/26/13 21:10	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/26/13 21:10	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Lab Sample ID: LCS 680-305275/4
Matrix: Water
Analysis Batch: 305275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	250	223		mg/L		89	80 - 120

Lab Sample ID: LCSD 680-305275/30
Matrix: Water
Analysis Batch: 305275

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	250	231		mg/L		92	80 - 120	4	30

Method: 325.2 - Chloride

Lab Sample ID: MB 680-304432/39
Matrix: Water
Analysis Batch: 304432

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			11/21/13 11:05	1

Lab Sample ID: LCS 680-304432/19
Matrix: Water
Analysis Batch: 304432

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.9		mg/L		100	85 - 115

Lab Sample ID: MB 680-304433/47
Matrix: Water
Analysis Batch: 304433

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			11/21/13 11:05	1

Lab Sample ID: LCS 680-304433/28
Matrix: Water
Analysis Batch: 304433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.8		mg/L		100	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-303346/13
Matrix: Water
Analysis Batch: 303346

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U	0.050		mg/L			11/14/13 16:51	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 353.2 - Nitrogen, Nitrate-Nitrite (Continued)

Lab Sample ID: LCS 680-303346/14

Matrix: Water

Analysis Batch: 303346

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Nitrate as N	0.497	0.504		mg/L		102	90 - 110
Nitrate Nitrite as N	0.997	1.01		mg/L		101	90 - 110
Nitrite as N	0.500	0.502		mg/L		100	90 - 110

Lab Sample ID: MB 680-303347/13

Matrix: Water

Analysis Batch: 303347

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrate as N	0.050	U	0.050		mg/L			11/14/13 17:39	1

Lab Sample ID: LCS 680-303347/14

Matrix: Water

Analysis Batch: 303347

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS		Unit	D	%Rec	%Rec. Limits
		Result	Qualifier				
Nitrate as N	0.497	0.491		mg/L		99	90 - 110
Nitrate Nitrite as N	0.997	0.995		mg/L		100	90 - 110
Nitrite as N	0.500	0.504		mg/L		101	90 - 110

Lab Sample ID: 680-96178-5 MS

Matrix: Water

Analysis Batch: 303347

Client Sample ID: CPA-B-SHU-1113

Prep Type: Total/NA

Analyte	Sample		Spike Added	MS MS		Unit	D	%Rec	%Rec. Limits
	Result	Qualifier		Result	Qualifier				
Nitrate as N	0.050	U	0.497	0.493		mg/L		99	90 - 110
Nitrate Nitrite as N	0.050		0.997	0.999		mg/L		99	90 - 110
Nitrite as N	0.050		0.500	0.506		mg/L		97	90 - 110

Lab Sample ID: 680-96178-5 MSD

Matrix: Water

Analysis Batch: 303347

Client Sample ID: CPA-B-SHU-1113

Prep Type: Total/NA

Analyte	Sample		Spike Added	MSD MSD		Unit	D	%Rec	%Rec. Limits	RPD	
	Result	Qualifier		Result	Qualifier					RPD	Limit
Nitrate as N	0.050	U	0.497	0.496		mg/L		100	90 - 110	1	10
Nitrate Nitrite as N	0.050		0.997	1.00		mg/L		99	90 - 110	0	10
Nitrite as N	0.050		0.500	0.505		mg/L		97	90 - 110	0	10

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-304985/5

Matrix: Water

Analysis Batch: 304985

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sulfate	5.0	U	5.0		mg/L			11/25/13 11:21	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 375.4 - Sulfate (Continued)

Lab Sample ID: LCS 680-304985/18

Matrix: Water

Analysis Batch: 304985

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.0		mg/L		100	75 - 125

Lab Sample ID: 680-96178-1 MS

Matrix: Water

Analysis Batch: 304985

Client Sample ID: CPA-A-MHU-1113

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	25	U	100	97.6		mg/L		98	75 - 125

Lab Sample ID: 680-96178-1 MSD

Matrix: Water

Analysis Batch: 304985

Client Sample ID: CPA-A-MHU-1113

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	25	U	100	98.9		mg/L		99	75 - 125	1	30

Lab Sample ID: 680-96178-3 DU

Matrix: Water

Analysis Batch: 304985

Client Sample ID: CPA-A-DHU-1113

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	93		89.3		mg/L		4	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-304592/2-A

Matrix: Water

Analysis Batch: 304878

Client Sample ID: Method Blank

Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			11/22/13 19:46	1

Lab Sample ID: LCS 680-304592/1-A

Matrix: Water

Analysis Batch: 304878

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	18.8		mg/L		94	80 - 120

Lab Sample ID: MB 680-305399/2-A

Matrix: Water

Analysis Batch: 305394

Client Sample ID: Method Blank

Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			11/26/13 09:19	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 415.1 - DOC (Continued)

Lab Sample ID: LCS 680-305399/1-A

Matrix: Water

Analysis Batch: 305394

Client Sample ID: Lab Control Sample

Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	18.9		mg/L		95	80 - 120

Lab Sample ID: 680-96178-6 MS

Matrix: Water

Analysis Batch: 305394

Client Sample ID: CPA-B-SHU-F(0.2)-1113

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	3.5		20.0	22.2		mg/L		93	80 - 120

Lab Sample ID: 680-96178-6 MSD

Matrix: Water

Analysis Batch: 305394

Client Sample ID: CPA-B-SHU-F(0.2)-1113

Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	3.5		20.0	22.6		mg/L		95	80 - 120	2	20

Method: 415.1 - TOC

Lab Sample ID: MB 680-304875/26

Matrix: Water

Analysis Batch: 304875

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			11/23/13 00:57	1

Lab Sample ID: LCS 680-304875/34

Matrix: Water

Analysis Batch: 304875

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	18.7		mg/L		94	80 - 120

Lab Sample ID: MB 680-304876/62

Matrix: Water

Analysis Batch: 304876

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			11/23/13 10:31	1

Lab Sample ID: LCS 680-304876/64

Matrix: Water

Analysis Batch: 304876

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.1		mg/L		95	80 - 120

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Method: 415.1 - TOC (Continued)

Lab Sample ID: 680-96178-3 MS

Matrix: Water

Analysis Batch: 304876

Client Sample ID: CPA-A-DHU-1113

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.3		20.0	23.4		mg/L		95	80 - 120

Lab Sample ID: 680-96178-3 MSD

Matrix: Water

Analysis Batch: 304876

Client Sample ID: CPA-A-DHU-1113

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD Limit
Total Organic Carbon	4.3		20.0	23.5		mg/L		96	80 - 120	0 25

Lab Sample ID: 680-96178-5 DU

Matrix: Water

Analysis Batch: 304876

Client Sample ID: CPA-B-SHU-1113

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD Limit
Total Organic Carbon	3.5		3.31		mg/L		6 25

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

GC/MS VOA

Analysis Batch: 304112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1MS	CPA-A-MHU-1113 MS	Total/NA	Water	8260B	
680-96178-1MSD	CPA-A-MHU-1113 MSD	Total/NA	Water	8260B	
680-96178-5	CPA-B-SHU-1113	Total/NA	Water	8260B	
680-96178-7	CPA-B-MHU-1113	Total/NA	Water	8260B	
680-96178-9	CPA-B-MHU-1113-EB	Total/NA	Water	8260B	
680-96178-10	4Q13 CPA Trip Blank #2	Total/NA	Water	8260B	
680-96178-11	CPA-B-DHU-1113	Total/NA	Water	8260B	
LCS 680-304112/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304112/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304112/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 304117

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total/NA	Water	8260B	
LCS 680-304117/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304117/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304117/8	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 304391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-3	CPA-A-DHU-1113	Total/NA	Water	8260B	
LCS 680-304391/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304391/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304391/8	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 303827

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total/NA	Water	RSK-175	
680-96178-3	CPA-A-DHU-1113	Total/NA	Water	RSK-175	
680-96178-5	CPA-B-SHU-1113	Total/NA	Water	RSK-175	
680-96178-7	CPA-B-MHU-1113	Total/NA	Water	RSK-175	
680-96178-11	CPA-B-DHU-1113	Total/NA	Water	RSK-175	
LCS 680-303827/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-303827/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-303827/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-303827/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-303827/3	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 303335

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total Recoverable	Water	3005A	
680-96178-2	CPA-A-MHU-F(0.2)-1113	Dissolved	Water	3005A	
680-96178-3	CPA-A-DHU-1113	Total Recoverable	Water	3005A	
680-96178-4	CPA-A-DHU-F(0.2)-1113	Dissolved	Water	3005A	
680-96178-5	CPA-B-SHU-1113	Total Recoverable	Water	3005A	
680-96178-6	CPA-B-SHU-F(0.2)-1113	Dissolved	Water	3005A	

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Metals (Continued)

Prep Batch: 303335 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-7	CPA-B-MHU-1113	Total Recoverable	Water	3005A	
680-96178-8	CPA-B-MHU-F(0.2)-1113	Dissolved	Water	3005A	
680-96178-11	CPA-B-DHU-1113	Total Recoverable	Water	3005A	
680-96178-12	CPA-B-DHU-F(0.2)-1113	Dissolved	Water	3005A	
LCS 680-303335/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-303335/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 303580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total Recoverable	Water	6010C	303335
680-96178-2	CPA-A-MHU-F(0.2)-1113	Dissolved	Water	6010C	303335
680-96178-3	CPA-A-DHU-1113	Total Recoverable	Water	6010C	303335
680-96178-4	CPA-A-DHU-F(0.2)-1113	Dissolved	Water	6010C	303335
680-96178-5	CPA-B-SHU-1113	Total Recoverable	Water	6010C	303335
680-96178-6	CPA-B-SHU-F(0.2)-1113	Dissolved	Water	6010C	303335
680-96178-7	CPA-B-MHU-1113	Total Recoverable	Water	6010C	303335
680-96178-8	CPA-B-MHU-F(0.2)-1113	Dissolved	Water	6010C	303335
680-96178-11	CPA-B-DHU-1113	Total Recoverable	Water	6010C	303335
680-96178-12	CPA-B-DHU-F(0.2)-1113	Dissolved	Water	6010C	303335
LCS 680-303335/2-A	Lab Control Sample	Total Recoverable	Water	6010C	303335
MB 680-303335/1-A	Method Blank	Total Recoverable	Water	6010C	303335

General Chemistry

Analysis Batch: 303346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total/NA	Water	353.2	
680-96178-3	CPA-A-DHU-1113	Total/NA	Water	353.2	
LCS 680-303346/14	Lab Control Sample	Total/NA	Water	353.2	
MB 680-303346/13	Method Blank	Total/NA	Water	353.2	


Analysis Batch: 303347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-5	CPA-B-SHU-1113	Total/NA	Water	353.2	
680-96178-5 MS	CPA-B-SHU-1113	Total/NA	Water	353.2	
680-96178-5 MSD	CPA-B-SHU-1113	Total/NA	Water	353.2	
680-96178-7	CPA-B-MHU-1113	Total/NA	Water	353.2	
680-96178-11	CPA-B-DHU-1113	Total/NA	Water	353.2	
LCS 680-303347/14	Lab Control Sample	Total/NA	Water	353.2	
MB 680-303347/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 304432

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total/NA	Water	325.2	
680-96178-3	CPA-A-DHU-1113	Total/NA	Water	325.2	
680-96178-5	CPA-B-SHU-1113	Total/NA	Water	325.2	
LCS 680-304432/19	Lab Control Sample	Total/NA	Water	325.2	
MB 680-304432/39	Method Blank	Total/NA	Water	325.2	

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

General Chemistry (Continued)

Analysis Batch: 304433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-7	CPA-B-MHU-1113	Total/NA	Water	325.2	
680-96178-11	CPA-B-DHU-1113	Total/NA	Water	325.2	
LCS 680-304433/28	Lab Control Sample	Total/NA	Water	325.2	
MB 680-304433/47	Method Blank	Total/NA	Water	325.2	

Filtration Batch: 304592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-304592/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
MB 680-304592/2-A	Method Blank	Dissolved	Water	FILTRATION	

Analysis Batch: 304875

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total/NA	Water	415.1	
LCS 680-304875/34	Lab Control Sample	Total/NA	Water	415.1	
MB 680-304875/26	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 304876

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-3	CPA-A-DHU-1113	Total/NA	Water	415.1	
680-96178-3 MS	CPA-A-DHU-1113	Total/NA	Water	415.1	
680-96178-3 MSD	CPA-A-DHU-1113	Total/NA	Water	415.1	
680-96178-5	CPA-B-SHU-1113	Total/NA	Water	415.1	
680-96178-5 DU	CPA-B-SHU-1113	Total/NA	Water	415.1	
680-96178-7	CPA-B-MHU-1113	Total/NA	Water	415.1	
680-96178-11	CPA-B-DHU-1113	Total/NA	Water	415.1	
LCS 680-304876/64	Lab Control Sample	Total/NA	Water	415.1	
MB 680-304876/62	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 304878

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-2	CPA-A-MHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96178-4	CPA-A-DHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96178-8	CPA-B-MHU-F(0.2)-1113	Dissolved	Water	415.1	
LCS 680-304592/1-A	Lab Control Sample	Dissolved	Water	415.1	304592
MB 680-304592/2-A	Method Blank	Dissolved	Water	415.1	304592

Analysis Batch: 304985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total/NA	Water	375.4	
680-96178-1 MS	CPA-A-MHU-1113	Total/NA	Water	375.4	
680-96178-1 MSD	CPA-A-MHU-1113	Total/NA	Water	375.4	
680-96178-3	CPA-A-DHU-1113	Total/NA	Water	375.4	
680-96178-3 DU	CPA-A-DHU-1113	Total/NA	Water	375.4	
680-96178-5	CPA-B-SHU-1113	Total/NA	Water	375.4	
680-96178-7	CPA-B-MHU-1113	Total/NA	Water	375.4	
680-96178-11	CPA-B-DHU-1113	Total/NA	Water	375.4	
LCS 680-304985/18	Lab Control Sample	Total/NA	Water	375.4	
MB 680-304985/5	Method Blank	Total/NA	Water	375.4	

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QC Association Summary

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

General Chemistry (Continued)

Analysis Batch: 305275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-1	CPA-A-MHU-1113	Total/NA	Water	310.1	
680-96178-3	CPA-A-DHU-1113	Total/NA	Water	310.1	
680-96178-5	CPA-B-SHU-1113	Total/NA	Water	310.1	
680-96178-7	CPA-B-MHU-1113	Total/NA	Water	310.1	
680-96178-11	CPA-B-DHU-1113	Total/NA	Water	310.1	
LCS 680-305275/4	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-305275/30	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-305275/3	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 305394

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96178-6	CPA-B-SHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96178-6 MS	CPA-B-SHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96178-6 MSD	CPA-B-SHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96178-12	CPA-B-DHU-F(0.2)-1113	Dissolved	Water	415.1	
LCS 680-305399/1-A	Lab Control Sample	Dissolved	Water	415.1	305399
MB 680-305399/2-A	Method Blank	Dissolved	Water	415.1	305399

Filtration Batch: 305399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-305399/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
MB 680-305399/2-A	Method Blank	Dissolved	Water	FILTRATION	

TestAmerica Savannah

DEC 11 2013
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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-A-MHU-1113

Lab Sample ID: 680-96178-1

Date Collected: 11/13/13 10:05

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	304117	11/20/13 17:35	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	303827	11/19/13 15:47	AJMC	TAL SAV
Total Recoverable	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	303580	11/16/13 08:42	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303346	11/14/13 17:37	CRW	TAL SAV
Total/NA	Analysis	325.2		1	304432	11/21/13 09:35	JME	TAL SAV
Total/NA	Analysis	415.1		1	304875	11/23/13 10:45	CMP	TAL SAV
Total/NA	Analysis	375.4		5	304985	11/25/13 12:03	JME	TAL SAV
Total/NA	Analysis	310.1		1	305275	11/26/13 22:34	LBH	TAL SAV

Client Sample ID: CPA-A-MHU-F(0.2)-1113

Lab Sample ID: 680-96178-2

Date Collected: 11/13/13 10:05

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Dissolved	Analysis	6010C		1	303580	11/16/13 08:47	BGB	TAL SAV
Dissolved	Analysis	415.1		1	304878	11/23/13 02:22	CMP	TAL SAV

Client Sample ID: CPA-A-DHU-1113

Lab Sample ID: 680-96178-3

Date Collected: 11/13/13 11:35

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		5	304391	11/21/13 15:39	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	303827	11/19/13 16:00	AJMC	TAL SAV
Total Recoverable	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	303580	11/16/13 08:51	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303346	11/14/13 17:38	CRW	TAL SAV
Total/NA	Analysis	325.2		1	304432	11/21/13 09:35	JME	TAL SAV
Total/NA	Analysis	415.1		1	304876	11/23/13 11:16	CMP	TAL SAV
Total/NA	Analysis	375.4		5	304985	11/25/13 12:05	JME	TAL SAV
Total/NA	Analysis	310.1		1	305275	11/26/13 22:48	LBH	TAL SAV

Client Sample ID: CPA-A-DHU-F(0.2)-1113

Lab Sample ID: 680-96178-4

Date Collected: 11/13/13 11:35

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Dissolved	Analysis	6010C		1	303580	11/16/13 09:05	BCB	TAL SAV

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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-A-DHU-F(0.2)-1113

Lab Sample ID: 680-96178-4

Date Collected: 11/13/13 11:35

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	304876	11/23/13 02:37	CMP	TAL SAV

Client Sample ID: CPA-B-SHU-1113

Lab Sample ID: 680-96178-5

Date Collected: 11/13/13 13:45

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	304112	11/20/13 13:42	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	303827	11/19/13 16:13	AJMC	TAL SAV
Total Recoverable	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	303580	11/16/13 09:10	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303347	11/14/13 17:42	CRW	TAL SAV
Total/NA	Analysis	325.2		2	304432	11/21/13 10:43	JME	TAL SAV
Total/NA	Analysis	415.1		1	304876	11/23/13 11:58	CMP	TAL SAV
Total/NA	Analysis	375.4		10	304985	11/25/13 12:11	JME	TAL SAV
Total/NA	Analysis	310.1		1	305275	11/26/13 21:45	LBH	TAL SAV

Client Sample ID: CPA-B-SHU-F(0.2)-1113

Lab Sample ID: 680-96178-6

Date Collected: 11/13/13 13:45

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Dissolved	Analysis	6010C		1	303580	11/16/13 09:15	BCB	TAL SAV
Dissolved	Analysis	415.1		1	305394	11/26/13 09:47	CMP	TAL SAV

Client Sample ID: CPA-B-MHU-1113

Lab Sample ID: 680-96178-7

Date Collected: 11/13/13 14:50

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1000	304112	11/20/13 14:04	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	303827	11/19/13 16:26	AJMC	TAL SAV
Total Recoverable	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	303580	11/16/13 09:19	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303347	11/14/13 17:48	CRW	TAL SAV
Total/NA	Analysis	325.2		5	304433	11/21/13 10:51	JME	TAL SAV
Total/NA	Analysis	415.1		1	304876	11/23/13 12:29	CMP	TAL SAV
Total/NA	Analysis	375.4		5	304985	11/25/13 12:07	JME	TAL SAV
Total/NA	Analysis	310.1		1	305275	11/26/13 22:00	LBH	TAL SAV

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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Client Sample ID: CPA-B-MHU-F(0.2)-1113

Lab Sample ID: 680-96178-8

Date Collected: 11/13/13 14:50

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Dissolved	Analysis	6010C		1	303580	11/16/13 09:24	BCB	TAL SAV
Dissolved	Analysis	415.1		1	304878	11/23/13 02:51	CMP	TAL SAV

Client Sample ID: CPA-B-MHU-1113-EB

Lab Sample ID: 680-96178-9

Date Collected: 11/13/13 14:05

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304112	11/20/13 11:52	JD1	TAL SAV

Client Sample ID: 4Q13 CPA Trip Blank #2

Lab Sample ID: 680-96178-10

Date Collected: 11/13/13 00:00

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304112	11/20/13 10:45	JD1	TAL SAV

Client Sample ID: CPA-B-DHU-1113

Lab Sample ID: 680-96178-11

Date Collected: 11/13/13 16:05

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		500	304112	11/20/13 14:27	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	303827	11/19/13 16:39	AJMC	TAL SAV
Total Recoverable	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	303580	11/16/13 09:29	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303347	11/14/13 17:49	CRW	TAL SAV
Total/NA	Analysis	325.2		1	304433	11/21/13 09:53	JME	TAL SAV
Total/NA	Analysis	415.1		1	304876	11/23/13 12:43	CMP	TAL SAV
Total/NA	Analysis	375.4		5	304985	11/25/13 12:07	JME	TAL SAV
Total/NA	Analysis	310.1		1	305275	11/26/13 22:24	LBH	TAL SAV

Client Sample ID: CPA-B-DHU-F(0.2)-1113

Lab Sample ID: 680-96178-12

Date Collected: 11/13/13 16:05

Matrix: Water

Date Received: 11/14/13 09:42

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303335	11/14/13 17:25	DAS	TAL SAV
Dissolved	Analysis	6010C		1	303580	11/16/13 09:33	BCB	TAL SAV
Dissolved	Analysis	415.1		1	305394	11/26/13 10:34	CMP	TAL SAV

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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858



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[Signature]

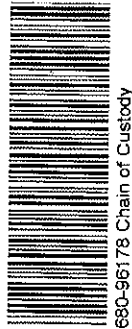
Savannah
5102 LaRoche Avenue

Savannah, GA 31404
phone 912.354.7858 fax 912.352.0165

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Chain of Custody Record

URS Corporation 1001 Highlands Plaza Drive West, Suite 300 St. Louis, MO 63110 (314) 429-0100 Phone (314) 429-0462 FAX Project Name: 4Q13 CPA GW Sampling Site: Solatia WG Krummrich Facility PO#		Client Contact Project Manager: Bob Billman Tel/Fax: (314) 743-4108		Site Contact: Michael Corbett Lab Contact: Michele Kersey		COC No: 1 of 2 COCs Carrier: FedEx Job No. 21562962.00004 SDG No.		TestAmerica Laboratories, Inc.	
Analysis Turnaround Time Calendar (C) or Work Days (W) <u>W</u> TAT if different from below: <u>Standard</u> <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Sample Date		Sample Time	Sample Type	Matrix	# of Cont.	Sample Specific Notes:	
CPA-A-MHU-1113 ✓		11/13/13	1005	G	Water	12	3	VOCs by 8260 Total F/Mn by 6010B Alk/CO2 by 310.1 Chloride by 325.2/Sulfate by 375.4 Dissolved Gases by RSK 175 Nitrate by 353.2 TOC by 415.1 Dissolved Fe/Mn by 6010B DOC by 415.1	
CPA-A-MHU-F(02)-1113 ✓			1005	G	Water	2	X		
CPA-A-DHU-1113 ✓			1135	G	Water	12	3		
CPA-A-DHU-F(02)-1113 ✓			1135	G	Water	2	X		
CPA-B-SHU-1113 ✓			1345	G	Water	12	3		
CPA-B-SHU-F(02)-1113 ✓			1345	G	Water	2	X		
CPA-B-MHU-1113 ✓			1450	G	Water	12	3		
CPA-B-MHU-F(02)-1113 ✓			1450	G	Water	2	X		
CPA-A-MHU-1113-MS			1005	G	Water	3	3		
CPA-A-MHU-1113-MSD			1005	G	Water	3	3		
CPA-B-MHU-1113-EB ✓			1405	G	Water	3	3		
4Q13 CPA Trip Blank # 2 ✓		11/13/13	—	—	Water	2	2		
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other									
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Corrosive <input type="checkbox"/> Toxic									
Special Instructions/QC Requirements & Comments:									
Relinquished by: <u>William Davis</u>		Company: URS	Date/Time: 11/13/13 1800	Received by: <u>[Signature]</u>		Company: <u>TA-SAV</u>	Date/Time: 11/14/13 09:47		
Relinquished by:		Company:	Date/Time:	Received by:		Company:	Date/Time:		
Relinquished by:		Company:	Date/Time:	Received by:		Company:	Date/Time:		



680-96178 Chain of Custody

0.2, 0.6 °C
680-96179

DEC 11 2013
mu

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

URS Corporation		Client Contact		Project Manager: Bob Billman Tel/Fax: (314) 743-4108		Site Contact: Michael Corbett		Carrier: FedEx		COC No: 2-003	
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time		Calendar (C) or Work Days (W) C		Lab Contact: Michele Kersey		Job No. 21562962.00004		SDG No.	
St. Louis, MO 63110		TAT if different from Below Standard		2 weeks		Disolved Gases by RSK 175					
(314) 429-0700		2 weeks		1 week		Chloride by 325.2/Sulfate by 375.4					
(314) 429-0462		2 days		2 days		Alk/CO2 by 310.1					
Project Name: 4Q13 CPA GW Sampling		1 day		1 day		Total Fe/Mn by 6010D					
Site: Solutia WG Krummich Facility						VOCs by 8260					
PO#						DOC by 415.1					
Sample Identification		Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Sample Specific Notes				
CPA-B-DH4-1113 ✓	11/13/13	1605	G	Water	12						
CPA-B-DH4-F(0.2)-1113 ✓	↓	1605	G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
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CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
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CPA-F(0.2)-1113			G	Water	2	X					
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CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
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CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
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CPA-F(0.2)-1113			G	Water	12						
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CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
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CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G	Water	12						
CPA-F(0.2)-1113			G	Water	2	X					
CPA-F(0.2)-1113			G								

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-96178-1

SDG Number: KPS103

Login Number: 96178

List Source: TestAmerica Savannah

List Number: 1

Creator: Contreras, Cesar A

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

DEC 11 2013
MM

Certification Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96178-1
SDG: KPS103

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-15
A2LA	ISO/IEC 17025		399.01	02-28-15
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	86-0692	02-01-14
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-13 *
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	12-31-13 *
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	06-17-14
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-13 *
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky	State Program	4	90084	12-31-13 *
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	30690	06-30-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-13 *
Massachusetts	State Program	1	M-GA006	06-30-14 *
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-14 *
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	04-01-14
North Carolina DENR	State Program	4	269	12-31-13 *
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	01-01-14 *
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia	State Program	3	9950C	12-31-13 *
West Virginia DEP	State Program	3	94	06-30-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Savannah

DEC 11 2013

4Q 2013 CPA Data Review

Laboratory SDG: KPS104

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 12/12/2013

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008. USEPA National Functional Guidelines for Superfund Inorganic Data Review 2010

Work Plan: Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009)

Sample Identification	
CPA-C-SHU-1113	CPA-C-SHU-F(0.2)-1113
CPA-C-MHU-1113	CPA-C-MHU-F(0.2)-1113
CPA-C-DHU-1113	CPA-C-DHU-F(0.2)-1113
CPA-C-MHU-1113-EB	CPA-C-DHU-1113-AD
4Q13 CPA Trip Blank #3	

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated the nitrate LCS recovery was outside evaluation criteria. Manganese MS/MSD recoveries in sample CPA-C-SHU-1113 and dissolved organic carbon MS/MSD recoveries in sample CPA-C-SHU-F(0.2)-1113, could not be evaluated because the sample concentrations were greater than four times (4X) the matrix spike concentration. Samples were diluted to high levels of target analytes. Although not indicated in the laboratory case narrative, VOCs were detected in the equipment blank. Calibration recoveries were outside evaluation criteria for nitrate in several samples. These issues are addressed further in the appropriate sections below.

The cooler receipt form indicated that one of one cooler was received by the laboratory at a temperature of 1.0°C, which is outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required. Dissolved organic carbon samples CPA-C-DHU-F(0.2)-1113 and CPA-C-SHU-F(0.2)-1113 were measured at a pH >2. Please see section 11.0 of this review for qualifications due to pH>2.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

Yes

Blank ID	Parameter	Analyte	Concentration/Amount
CPA-C-MHU-1113-EB	VOCs	Chlorobenzene	15 ug/L
CPA-C-MHU-1113-EB	VOCs	1,2-Dichlorobenzene	62 ug/L
CPA-C-MHU-1113-EB	VOCs	1,3-Dichlorobenzene	6.5 ug/L
CPA-C-MHU-1113-EB	VOCs	1,4-Dichlorobenzene	69 ug/L

Analytical data reported non-detect or at concentrations greater than five times (5X) the associated blank concentration did not require qualification. No qualification of data was required.

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

No

LCS ID	Parameter	Analyte	LCS Recovery	LCS Criteria
LCS 680-303565/14	General chemistry	Nitrate	111	90-110

Analytical data that required qualification based on LCS data are included in the table below. Analytical data reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification.

Sample ID	Parameter	Analyte	Qualification
CPA-C-SHU-1113	General chemistry	Nitrate	J

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

Yes

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

Yes, although not requested, sample CPA-C-SHU-1113 was spiked and analyzed for total metals, sample CPA-C-DHU-1113 was spiked and analyzed for nitrate, and sample CPA-C-SHU-F(0.2)-1113 was spiked and analyzed for dissolved organic carbon.

Were MS/MSD recoveries within evaluation criteria?

Yes, however, manganese MS/MSD recoveries in sample CPA-C-SHU-1113, and dissolved organic carbon MS/MSD recoveries in sample CPA-C-SHU-F(0.2)-1113, could not be evaluated because the sample concentrations were greater than four times (4X) the matrix spike concentration. No qualification of data was required.

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

Yes

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

Yes, sample CPA-C-SHU-1113 was duplicated and analyzed for total organic carbon.

Were laboratory duplicate sample RPDs within criteria?

Yes

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

Yes

Field ID	Field Duplicate ID
CPA-C-DHU-1113	CPA-C-DHU-1113-AD

Were field duplicates within evaluation criteria?

Yes

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; analytes were detected in samples that were diluted.

12.0 Additional Qualifications

Were additional qualifications applied?

Yes, calibration recoveries were outside evaluation criteria for nitrate in the following samples; data qualifications are included below.

Sample ID	Parameter	Analyte	Qualification
CPA-C-MHU-1113	General chemistry	Nitrate	UJ
CPA-C-DHU-1113	General chemistry	Nitrate	UJ

Additionally, dissolved organic carbon and dissolved metals samples were received at a pH>2. The pH was appropriately adjusted for the dissolved metals samples. Analytical data requiring qualification are included in the following table.

Sample ID	Parameter	Analyte	Qualification
CPA-C-DHU-F(0.2)-1113	General chemistry	Dissolved organic carbon	J
CPA-C-SHU-F(0.2)-1113	General chemistry	Dissolved organic carbon	J

SDG KPS104

Results of Samples from Monitoring Wells:

CPA-C-SHU

CPA-C-MHU

CPA-C-DHU

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-96229-1
TestAmerica Sample Delivery Group: KPS104
Client Project/Site: WGK - CPA GW 4Q13

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele R Kersey

Authorized for release by:
12/9/2013 4:43:22 PM

Michele Kersey, Project Manager I
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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

*Reviewed on
DEC 12 2013*

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DEC 12 2013 *Handwritten signature*

Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Job ID: 680-96229-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: WGK - CPA GW 4Q13

Report Number: 680-96229-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/15/2013 9:31 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.0° C.

Except:

Method(s) 415.1: The following sample(s) were collected in properly preserved vials, however, the pH was outside the required criteria when verified by the laboratory: CPA-C-DHU-F(0.2)-1113 (680-96229-6).

Method(s) 415.1, SM 5310B: The following sample(s) were collected in properly preserved vials, however, the pH was outside the required criteria when verified by the laboratory: (680-96229-2 MS), (680-96229-2 MSD), CPA-C-SHU-F(0.2)-1113 (680-96229-2).

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples CPA-C-SHU-1113 (680-96229-1), CPA-C-MHU-1113 (680-96229-3), CPA-C-DHU-1113 (680-96229-5), CPA-C-MHU-1113-EB (680-96229-7), CPA-C-DHU-1113-AD (680-96229-8) and 4Q13 CPA Trip Blank #3 (680-96229-9) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/20/2013.

Samples CPA-C-SHU-1113 (680-96229-1)[200X], CPA-C-MHU-1113 (680-96229-3)[2500X], CPA-C-DHU-1113 (680-96229-5)[200X] and CPA-C-DHU-1113-AD (680-96229-8)[200X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the volatiles analysis.


All quality control parameters were within the acceptance limits.

DISSOLVED GASES

Samples CPA-C-SHU-1113 (680-96229-1), CPA-C-MHU-1113 (680-96229-3) and CPA-C-DHU-1113 (680-96229-5) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/21/2013.

No difficulties were encountered during the dissolved gases analysis.

All quality control parameters were within the acceptance limits.

DEC 12 2013 

Case Narrative

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Job ID: 680-96229-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

METALS (ICP)

Samples CPA-C-SHU-F(0.2)-1113 (680-96229-2), CPA-C-MHU-F(0.2)-1113 (680-96229-4) and CPA-C-DHU-F(0.2)-1113 (680-96229-6) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/18/2013 and analyzed on 11/19/2013.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

METALS (ICP)

Samples CPA-C-SHU-1113 (680-96229-1), CPA-C-MHU-1113 (680-96229-3) and CPA-C-DHU-1113 (680-96229-5) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/18/2013 and analyzed on 11/19/2013.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

ALKALINITY

Samples CPA-C-SHU-1113 (680-96229-1), CPA-C-MHU-1113 (680-96229-3) and CPA-C-DHU-1113 (680-96229-5) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/27/2013.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

CHLORIDE

Samples CPA-C-SHU-1113 (680-96229-1), CPA-C-MHU-1113 (680-96229-3) and CPA-C-DHU-1113 (680-96229-5) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/21/2013.

Samples CPA-C-SHU-1113 (680-96229-1)[5X] and CPA-C-MHU-1113 (680-96229-3)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the chloride analysis.

All quality control parameters were within the acceptance limits.

NITRATE-NITRITE AS NITROGEN

Samples CPA-C-SHU-1113 (680-96229-1), CPA-C-MHU-1113 (680-96229-3) and CPA-C-DHU-1113 (680-96229-5) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/15/2013.

The nitrate result is obtained from a calculation incorporating the nitrate+nitrite and nitrite results. Re-analysis is not performed if QC for the calculated analyte does not meet acceptance criteria, provided the QC results for the component analytes are acceptable. Data have been qualified to denote this situation.

Sample CPA-C-SHU-1113 (680-96229-1)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the nitrate-nitrite analysis.

All quality control parameters were within the acceptance limits.

SULFATE

Samples CPA-C-SHU-1113 (680-96229-1), CPA-C-MHU-1113 (680-96229-3) and CPA-C-DHU-1113 (680-96229-5) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/25/2013.

Samples CPA-C-SHU-1113 (680-96229-1)[50X], CPA-C-MHU-1113 (680-96229-3)[20X] and CPA-C-DHU-1113 (680-96229-5)[5X]

DEC 12 2013 *HM*

Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Job ID: 680-96229-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the sulfate analysis.

All quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON

Samples CPA-C-SHU-1113 (680-96229-1), CPA-C-MHU-1113 (680-96229-3) and CPA-C-DHU-1113 (680-96229-5) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/29/2013.

Sample CPA-C-SHU-1113 (680-96229-1)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the TOC analysis.

All quality control parameters were within the acceptance limits.

DISSOLVED ORGANIC CARBON (DOC)

Samples CPA-C-SHU-F(0.2)-1113 (680-96229-2), CPA-C-MHU-F(0.2)-1113 (680-96229-4) and CPA-C-DHU-F(0.2)-1113 (680-96229-6) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 12/02/2013 and 12/04/2013.

No difficulties were encountered during the DOC analysis.

All quality control parameters were within the acceptance limits.

DEC 12 2013

Sample Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-96229-1	CPA-C-SHU-1113 ✓	Water	11/14/13 11:40	11/15/13 09:31
680-96229-2	CPA-C-SHU-F(0.2)-1113 ✓	Water	11/14/13 11:40	11/15/13 09:31
680-96229-3	CPA-C-MHU-1113 ✓	Water	11/14/13 14:30	11/15/13 09:31
680-96229-4	CPA-C-MHU-F(0.2)-1113 ✓	Water	11/14/13 14:30	11/15/13 09:31
680-96229-5	CPA-C-DHU-1113 ✓	Water	11/14/13 15:45	11/15/13 09:31
680-96229-6	CPA-C-DHU-F(0.2)-1113 ✓	Water	11/14/13 15:45	11/15/13 09:31
680-96229-7	CPA-C-MHU-1113-EB ✓	Water	11/14/13 13:30	11/15/13 09:31
680-96229-8	CPA-C-DHU-1113-AD ✓	Water	11/14/13 15:45	11/15/13 09:31
680-96229-9	4Q13 CPA Trip Blank #3 ✓	Water	11/14/13 00:00	11/15/13 09:31

DEC 12 2013
TestAmerica Savannah *[Signature]*

Method Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

DEC 12 2013



TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

DEC 12 2013

TestAmerica Savannah

Detection Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-SHU-1113

Lab Sample ID: 680-96229-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	1100		200		ug/L	200		8260B	Total/NA
Chlorobenzene	7200		200		ug/L	200		8260B	Total/NA
1,2-Dichlorobenzene	13000		200		ug/L	200		8260B	Total/NA
1,3-Dichlorobenzene	1100		200		ug/L	200		8260B	Total/NA
1,4-Dichlorobenzene	7200		200		ug/L	200		8260B	Total/NA
Methane (TCD)	550		390		ug/L	1		RSK-175	Total/NA
Iron	3.0		0.050		mg/L	1		6010C	Total
Manganese	4.9		0.010		mg/L	1		6010C	Total
									Recoverable
Chloride	360		5.0		mg/L	5		325.2	Total/NA
Nitrate as N	2.1	^ J	0.10		mg/L	2		353.2	Total/NA
Sulfate	810		250		mg/L	50		375.4	Total/NA
Total Organic Carbon	310		5.0		mg/L	5		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	490		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	130		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-C-SHU-F(0.2)-1113

Lab Sample ID: 680-96229-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.21		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	4.9		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	290	J	1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-C-MHU-1113

Lab Sample ID: 680-96229-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	100000		2500		ug/L	2500		8260B	Total/NA
Chlorobenzene	160000		2500		ug/L	2500		8260B	Total/NA
1,2-Dichlorobenzene	17000		2500		ug/L	2500		8260B	Total/NA
1,4-Dichlorobenzene	21000		2500		ug/L	2500		8260B	Total/NA
Ethane	6.8		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	13000		390		ug/L	1		RSK-175	Total/NA
Iron	52		0.050		mg/L	1		6010C	Total
Manganese	3.8		0.010		mg/L	1		6010C	Total
									Recoverable
Chloride	700		10		mg/L	10		325.2	Total/NA
Sulfate	350		100		mg/L	20		375.4	Total/NA
Total Organic Carbon	48		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	370		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	170		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-C-MHU-F(0.2)-1113

Lab Sample ID: 680-96229-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	53		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	3.8		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	44		1.0		mg/L	1		415.1	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

DEC 12 2013

Detection Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-DHU-1113

Lab Sample ID: 680-96229-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4500		200		ug/L	200		8260B	Total/NA
Chlorobenzene	24000		200		ug/L	200		8260B	Total/NA
1,2-Dichlorobenzene	9300		200		ug/L	200		8260B	Total/NA
1,3-Dichlorobenzene	730		200		ug/L	200		8260B	Total/NA
1,4-Dichlorobenzene	14000		200		ug/L	200		8260B	Total/NA
Ethane	2.2		1.1		ug/L	1		RSK-175	Total/NA
Methane	150		0.58		ug/L	1		RSK-175	Total/NA
Iron	2.4		0.050		mg/L	1		6010C	Total Recoverable
Manganese	0.58		0.010		mg/L	1		6010C	Total Recoverable
Chloride	62		1.0		mg/L	1		325.2	Total/NA
Sulfate	63		25		mg/L	5		375.4	Total/NA
Total Organic Carbon	31		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	510		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	31		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-C-DHU-F(0.2)-1113

Lab Sample ID: 680-96229-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	2.2		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.56		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	32		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-C-MHU-1113-EB

Lab Sample ID: 680-96229-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	15		1.0		ug/L	1		8260B	Total/NA
1,2-Dichlorobenzene	62		1.0		ug/L	1		8260B	Total/NA
1,3-Dichlorobenzene	6.5		1.0		ug/L	1		8260B	Total/NA
1,4-Dichlorobenzene	69		1.0		ug/L	1		8260B	Total/NA

Client Sample ID: CPA-C-DHU-1113-AD

Lab Sample ID: 680-96229-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4300		200		ug/L	200		8260B	Total/NA
Chlorobenzene	22000		200		ug/L	200		8260B	Total/NA
1,2-Dichlorobenzene	8000		200		ug/L	200		8260B	Total/NA
1,3-Dichlorobenzene	610		200		ug/L	200		8260B	Total/NA
1,4-Dichlorobenzene	12000		200		ug/L	200		8260B	Total/NA

Client Sample ID: 4Q13 CPA Trip Blank #3

Lab Sample ID: 680-96229-9

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

DEC 12 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-SHU-1113

Lab Sample ID: 680-96229-1

Date Collected: 11/14/13 11:40

Matrix: Water

Date Received: 11/15/13 09:31

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1100		200		ug/L			11/20/13 14:49	200
Chlorobenzene	7200		200		ug/L			11/20/13 14:49	200
1,2-Dichlorobenzene	13000		200		ug/L			11/20/13 14:49	200
1,3-Dichlorobenzene	1100		200		ug/L			11/20/13 14:49	200
1,4-Dichlorobenzene	7200		200		ug/L			11/20/13 14:49	200

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	107		70 - 130					11/20/13 14:49	200
Dibromofluoromethane	124		70 - 130					11/20/13 14:49	200
Toluene-d8 (Surr)	96		70 - 130					11/20/13 14:49	200

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/21/13 14:47	1
Ethylene	1.0	U	1.0		ug/L			11/21/13 14:47	1
Methane (TCD)	550		390		ug/L			11/21/13 14:47	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	3.0		0.050		mg/L		11/18/13 11:24	11/19/13 19:04	1
Manganese	4.9		0.010		mg/L		11/18/13 11:24	11/19/13 19:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	360		5.0		mg/L			11/21/13 10:51	5
Nitrate as N	2.1	^ J	0.10		mg/L			11/15/13 18:24	2
Sulfate	810		250		mg/L			11/25/13 12:44	50
Total Organic Carbon	310		5.0		mg/L			11/29/13 16:56	5
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	490		5.0		mg/L			11/27/13 16:31	1
Carbon Dioxide, Free	130		5.0		mg/L			11/27/13 16:31	1

TestAmerica Savannah

DEC 12 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-SHU-F(0.2)-1113

Lab Sample ID: 680-96229-2

Date Collected: 11/14/13 11:40

Matrix: Water

Date Received: 11/15/13 09:31

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.21		0.050		mg/L		11/18/13 11:24	11/19/13 19:18	1
Manganese, Dissolved	4.9		0.010		mg/L		11/18/13 11:24	11/19/13 19:18	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	290		1.0		mg/L			12/04/13 20:02	1

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DEC 12 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-MHU-1113

Lab Sample ID: 680-96229-3

Date Collected: 11/14/13 14:30

Matrix: Water

Date Received: 11/15/13 09:31

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	100000		2500		ug/L			11/20/13 15:33	2500
Chlorobenzene	160000		2500		ug/L			11/20/13 15:33	2500
1,2-Dichlorobenzene	17000		2500		ug/L			11/20/13 15:33	2500
1,3-Dichlorobenzene	2500	U	2500		ug/L			11/20/13 15:33	2500
1,4-Dichlorobenzene	21000		2500		ug/L			11/20/13 15:33	2500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	107		70 - 130		11/20/13 15:33	2500
Dibromofluoromethane	120		70 - 130		11/20/13 15:33	2500
Toluene-d8 (Surr)	100		70 - 130		11/20/13 15:33	2500

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	6.8		1.1		ug/L			11/21/13 14:34	1
Ethylene	1.0	U	1.0		ug/L			11/21/13 14:34	1
Methane (TCD)	13000		390		ug/L			11/21/13 14:34	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	62		0.050		mg/L		11/18/13 11:24	11/19/13 19:22	1
Manganese	3.8		0.010		mg/L		11/18/13 11:24	11/19/13 19:22	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	700		10		mg/L			11/21/13 10:54	10
Nitrate as N	0.050	U * UJ	0.050		mg/L			11/15/13 18:21	1
Sulfate	350		100		mg/L			11/25/13 12:30	20
Total Organic Carbon	48		1.0		mg/L			11/29/13 17:25	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	370		5.0		mg/L			11/27/13 16:40	1
Carbon Dioxide, Free	170		5.0		mg/L			11/27/13 16:40	1

TestAmerica Savannah

DEC 12 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-MHU-F(0.2)-1113

Lab Sample ID: 680-96229-4

Date Collected: 11/14/13 14:30

Matrix: Water

Date Received: 11/15/13 09:31

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	53		0.050		mg/L		11/18/13 11:24	11/19/13 19:36	1
Manganese, Dissolved	3.8		0.010		mg/L		11/18/13 11:24	11/19/13 19:36	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	44		1.0		mg/L			12/02/13 14:49	1

TestAmerica Savannah

DEC 18 2013
Handwritten signature

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-DHU-1113

Lab Sample ID: 680-96229-5

Date Collected: 11/14/13 15:45

Matrix: Water

Date Received: 11/15/13 09:31

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4500		200		ug/L			11/20/13 15:11	200
Chlorobenzene	24000		200		ug/L			11/20/13 15:11	200
1,2-Dichlorobenzene	9300		200		ug/L			11/20/13 15:11	200
1,3-Dichlorobenzene	730		200		ug/L			11/20/13 15:11	200
1,4-Dichlorobenzene	14000		200		ug/L			11/20/13 15:11	200

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	105		70 - 130					11/20/13 15:11	200
Dibromofluoromethane	129		70 - 130					11/20/13 15:11	200
Toluene-d8 (Surr)	106		70 - 130					11/20/13 15:11	200

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	2.2		1.1		ug/L			11/21/13 14:21	1
Ethylene	1.0	U	1.0		ug/L			11/21/13 14:21	1
Methane	150		0.58		ug/L			11/21/13 14:21	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	2.4		0.050		mg/L		11/18/13 11:24	11/19/13 19:41	1
Manganese	0.58		0.010		mg/L		11/18/13 11:24	11/19/13 19:41	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	62		1.0		mg/L			11/21/13 10:03	1
Nitrate as N	0.050	U ^ * UJ	0.050		mg/L			11/15/13 18:18	1
Sulfate	63		25		mg/L			11/25/13 12:32	5
Total Organic Carbon	31		1.0		mg/L			11/29/13 17:39	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	510		5.0		mg/L			11/27/13 16:48	1
Carbon Dioxide, Free	31		5.0		mg/L			11/27/13 16:48	1

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DEC 12 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-DHU-F(0.2)-1113

Lab Sample ID: 680-96229-6

Date Collected: 11/14/13 15:45

Matrix: Water

Date Received: 11/15/13 09:31

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	2.2		0.050		mg/L		11/18/13 11:24	11/19/13 19:55	1
Manganese, Dissolved	0.56		0.010		mg/L		11/18/13 11:24	11/19/13 19:55	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	32	J	1.0		mg/L			12/02/13 15:03	1

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-MHU-1113-EB

Lab Sample ID: 680-96229-7

Date Collected: 11/14/13 13:30

Matrix: Water

Date Received: 11/15/13 09:31

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 12:14	1
Chlorobenzene	15		1.0		ug/L			11/20/13 12:14	1
1,2-Dichlorobenzene	62		1.0		ug/L			11/20/13 12:14	1
1,3-Dichlorobenzene	6.5		1.0		ug/L			11/20/13 12:14	1
1,4-Dichlorobenzene	69		1.0		ug/L			11/20/13 12:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	103		70 - 130					11/20/13 12:14	1
Dibromofluoromethane	127		70 - 130					11/20/13 12:14	1
Toluene-d8 (Surr)	99		70 - 130					11/20/13 12:14	1

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DEC 12 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-DHU-1113-AD

Lab Sample ID: 680-96229-8

Date Collected: 11/14/13 15:45

Matrix: Water

Date Received: 11/15/13 09:31

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4300		200		ug/L			11/20/13 16:18	200
Chlorobenzene	22000		200		ug/L			11/20/13 16:18	200
1,2-Dichlorobenzene	8000		200		ug/L			11/20/13 16:18	200
1,3-Dichlorobenzene	610		200		ug/L			11/20/13 16:18	200
1,4-Dichlorobenzene	12000		200		ug/L			11/20/13 16:18	200
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	103		70 - 130					11/20/13 16:18	200
Dibromofluoromethane	130		70 - 130					11/20/13 16:18	200
Toluene-d8 (Surr)	99		70 - 130					11/20/13 16:18	200

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: 4Q13 CPA Trip Blank #3

Lab Sample ID: 680-96229-9

Date Collected: 11/14/13 00:00

Matrix: Water

Date Received: 11/15/13 09:31

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 11:07	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:07	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:07	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:07	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:07	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	106		70 - 130					11/20/13 11:07	1
Dibromofluoromethane	130		70 - 130					11/20/13 11:07	1
Toluene-d8 (Surr)	97		70 - 130					11/20/13 11:07	1

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Surrogate Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	BFB	DBFM	TOL
		(70-130)	(70-130)	(70-130)
680-96229-1	CPA-C-SHU-1113	107	124	96
680-96229-3	CPA-C-MHU-1113	107	120	100
680-96229-5	CPA-C-DHU-1113	105	129	106
680-96229-7	CPA-C-MHU-1113-EB	103	127	99
680-96229-8	CPA-C-DHU-1113-AD	103	130	99
680-96229-9	4Q13 CPA Trip Blank #3	106	130	97
LCS 680-304112/3	Lab Control Sample	107	125	103
LCSD 680-304112/4	Lab Control Sample Dup	110	118	103
MB 680-304112/7	Method Blank	104	127	95

Surrogate Legend

BFB = 4-Bromofluorobenzene

DBFM = Dibromofluoromethane

TOL = Toluene-d8 (Surr)

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-304112/7
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		70 - 130					11/20/13 09:53	1
Dibromofluoromethane	127		70 - 130					11/20/13 09:53	1
Toluene-d8 (Surr)	95		70 - 130					11/20/13 09:53	1

Lab Sample ID: LCS 680-304112/3
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	50.6		ug/L		101	74 - 123
Chlorobenzene	50.0	53.9		ug/L		108	79 - 120
1,2-Dichlorobenzene	50.0	50.5		ug/L		101	77 - 124
1,3-Dichlorobenzene	50.0	48.9		ug/L		98	79 - 123
1,4-Dichlorobenzene	50.0	51.5		ug/L		103	76 - 124
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
4-Bromofluorobenzene	107		70 - 130				
Dibromofluoromethane	125		70 - 130				
Toluene-d8 (Surr)	103		70 - 130				

Lab Sample ID: LCSD 680-304112/4
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	51.6		ug/L		103	74 - 123	2	30
Chlorobenzene	50.0	50.9		ug/L		102	79 - 120	6	30
1,2-Dichlorobenzene	50.0	51.6		ug/L		103	77 - 124	2	30
1,3-Dichlorobenzene	50.0	50.2		ug/L		100	79 - 123	3	30
1,4-Dichlorobenzene	50.0	51.7		ug/L		103	76 - 124	0	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene	110		70 - 130						
Dibromofluoromethane	118		70 - 130						
Toluene-d8 (Surr)	103		70 - 130						

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-304275/3
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/21/13 09:05	1
Ethylene	1.0	U	1.0		ug/L			11/21/13 09:05	1
Methane	0.58	U	0.58		ug/L			11/21/13 09:05	1
Methane (TCD)	390	U	390		ug/L			11/21/13 09:05	1

Lab Sample ID: LCS 680-304275/4
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	346		ug/L		120	75 - 125
Ethylene	269	326		ug/L		121	75 - 125
Methane	154	175		ug/L		113	75 - 125

Lab Sample ID: LCS 680-304275/8
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	2270		ug/L		118	75 - 125

Lab Sample ID: LCSD 680-304275/5
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	298		ug/L		103	75 - 125	15	30
Ethylene	269	285		ug/L		106	75 - 125	13	30
Methane	154	150		ug/L		98	75 - 125	15	30

Lab Sample ID: LCSD 680-304275/9
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	2080		ug/L		108	75 - 125	9	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-303771/1-A
Matrix: Water
Analysis Batch: 304177

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 303771

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.050	U	0.050		mg/L		11/18/13 11:24	11/19/13 18:55	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/18/13 11:24	11/19/13 18:55	1
Manganese	0.010	U	0.010		mg/L		11/18/13 11:24	11/19/13 18:55	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/18/13 11:24	11/19/13 18:55	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 680-303771/2-A
Matrix: Water
Analysis Batch: 304177

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 303771

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							75 - 125	75 - 125
Iron	5.00	5.39		mg/L		108		
Iron, Dissolved	5.00	5.39		mg/L		108	75 - 125	
Manganese	0.500	0.541		mg/L		108	75 - 125	
Manganese, Dissolved	0.500	0.541		mg/L		108	75 - 125	

Lab Sample ID: 680-96229-1 MS
Matrix: Water
Analysis Batch: 304177

Client Sample ID: CPA-C-SHU-1113
Prep Type: Total Recoverable
Prep Batch: 303771

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	
									75 - 125	75 - 125
Iron	3.0		5.00	8.14		mg/L		102	75 - 125	
Iron, Dissolved	3.0		5.00	8.14		mg/L		102	75 - 125	
Manganese	4.9		0.500	5.47	4	mg/L		123	75 - 125	
Manganese, Dissolved	4.9		0.500	5.47	4	mg/L		123	75 - 125	

Lab Sample ID: 680-96229-1 MSD
Matrix: Water
Analysis Batch: 304177

Client Sample ID: CPA-C-SHU-1113
Prep Type: Total Recoverable
Prep Batch: 303771

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Result	Qualifier	Added	Result	Qualifier				Limits		Limit
Iron	3.0		5.00	8.10		mg/L		101	75 - 125	0	20
Iron, Dissolved	3.0		5.00	8.10		mg/L		101	75 - 125	0	20
Manganese	4.9		0.500	5.27	4	mg/L		81	75 - 125	4	20
Manganese, Dissolved	4.9		0.500	5.27	4	mg/L		81	75 - 125	4	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-305471/3
Matrix: Water
Analysis Batch: 305471

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			11/27/13 16:16	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/27/13 16:16	1

Lab Sample ID: LCS 680-305471/4
Matrix: Water
Analysis Batch: 305471

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
							80 - 120	80 - 120
Alkalinity	250	221		mg/L		88	80 - 120	

Lab Sample ID: LCSD 680-305471/22
Matrix: Water
Analysis Batch: 305471

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	RPD
	Added	Result	Qualifier				Limits		
Alkalinity	250	221		mg/L		88	80 - 120	0	30

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Method: 325.2 - Chloride

Lab Sample ID: MB 680-304433/47
Matrix: Water
Analysis Batch: 304433

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			11/21/13 11:05	1

Lab Sample ID: LCS 680-304433/28
Matrix: Water
Analysis Batch: 304433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.8		mg/L		100	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-303565/13
Matrix: Water
Analysis Batch: 303565

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U ^	0.050		mg/L			11/15/13 18:15	1

Lab Sample ID: LCS 680-303565/14
Matrix: Water
Analysis Batch: 303565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.497	0.551	^ *	mg/L		111	90 - 110
Nitrate Nitrite as N	0.997	1.05		mg/L		106	90 - 110
Nitrite as N	0.500	0.501		mg/L		100	90 - 110

Lab Sample ID: 680-96229-5 MS
Matrix: Water
Analysis Batch: 303565

Client Sample ID: CPA-C-DHU-1113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.050	U ^ *	0.497	0.539	^	mg/L		108	90 - 110
Nitrate Nitrite as N	0.050		0.997	1.04		mg/L		105	90 - 110
Nitrite as N	0.050		0.500	0.506		mg/L		99	90 - 110

Lab Sample ID: 680-96229-5 MSD
Matrix: Water
Analysis Batch: 303565

Client Sample ID: CPA-C-DHU-1113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.050	U ^ *	0.497	0.536	^	mg/L		108	90 - 110	1	10
Nitrate Nitrite as N	0.050		0.997	1.04		mg/L		105	90 - 110	0	10
Nitrite as N	0.050		0.500	0.508		mg/L		99	90 - 110	1	10

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-304984/18
Matrix: Water
Analysis Batch: 304984

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			11/25/13 11:17	1

Lab Sample ID: LCS 680-304984/17
Matrix: Water
Analysis Batch: 304984

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Sulfate	20.0	20.1		mg/L		100	75 - 125

Method: 415.1 - DOC

Lab Sample ID: MB 680-306028/2-A
Matrix: Water
Analysis Batch: 306025

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			12/02/13 13:49	1

Lab Sample ID: LCS 680-306028/1-A
Matrix: Water
Analysis Batch: 306025

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dissolved Organic Carbon	20.0	19.0		mg/L		95	80 - 120

Lab Sample ID: MB 680-306244/2-A
Matrix: Water
Analysis Batch: 306228

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			12/04/13 19:46	1

Lab Sample ID: LCS 680-306244/1-A
Matrix: Water
Analysis Batch: 306228

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Dissolved Organic Carbon	20.0	20.3		mg/L		102	80 - 120

Lab Sample ID: 680-96229-2 MS
Matrix: Water
Analysis Batch: 306228

Client Sample ID: CPA-C-SHU-F(0.2)-1113
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Dissolved Organic Carbon	290		20.0	287	4	mg/L		-19	80 - 120

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Method: 415.1 - DOC (Continued)

Lab Sample ID: 680-96229-2 MSD
Matrix: Water
Analysis Batch: 306228

Client Sample ID: CPA-C-SHU-F(0.2)-1113
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dissolved Organic Carbon	290		20.0	287	4	mg/L		-22	80 - 120	0	20

Method: 415.1 - TOC

Lab Sample ID: MB 680-305596/2
Matrix: Water
Analysis Batch: 305596

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	DII Fac
Total Organic Carbon	1.0	U	1.0		mg/L			11/29/13 13:30	1

Lab Sample ID: LCS 680-305596/5
Matrix: Water
Analysis Batch: 305596

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.6		mg/L		98	80 - 120

Lab Sample ID: 680-96229-1 DU
Matrix: Water
Analysis Batch: 305596

Client Sample ID: CPA-C-SHU-1113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Organic Carbon	310		314		mg/L		0.6	25

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

GC/MS VOA

Analysis Batch: 304112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total/NA	Water	8260B	
680-96229-3	CPA-C-MHU-1113	Total/NA	Water	8260B	
680-96229-5	CPA-C-DHU-1113	Total/NA	Water	8260B	
680-96229-7	CPA-C-MHU-1113-EB	Total/NA	Water	8260B	
680-96229-8	CPA-C-DHU-1113-AD	Total/NA	Water	8260B	
680-96229-9	4Q13 CPA Trip Blank #3	Total/NA	Water	8260B	
LCS 680-304112/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304112/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304112/7	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 304275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total/NA	Water	RSK-175	
680-96229-3	CPA-C-MHU-1113	Total/NA	Water	RSK-175	
680-96229-5	CPA-C-DHU-1113	Total/NA	Water	RSK-175	
LCS 680-304275/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-304275/8	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-304275/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-304275/9	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-304275/3	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 303771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total Recoverable	Water	3005A	
680-96229-1 MS	CPA-C-SHU-1113	Total Recoverable	Water	3005A	
680-96229-1 MSD	CPA-C-SHU-1113	Total Recoverable	Water	3005A	
680-96229-2	CPA-C-SHU-F(0.2)-1113	Dissolved	Water	3005A	
680-96229-3	CPA-C-MHU-1113	Total Recoverable	Water	3005A	
680-96229-4	CPA-C-MHU-F(0.2)-1113	Dissolved	Water	3005A	
680-96229-5	CPA-C-DHU-1113	Total Recoverable	Water	3005A	
680-96229-6	CPA-C-DHU-F(0.2)-1113	Dissolved	Water	3005A	
LCS 680-303771/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-303771/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 304177

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total Recoverable	Water	6010C	303771
680-96229-1 MS	CPA-C-SHU-1113	Total Recoverable	Water	6010C	303771
680-96229-1 MSD	CPA-C-SHU-1113	Total Recoverable	Water	6010C	303771
680-96229-2	CPA-C-SHU-F(0.2)-1113	Dissolved	Water	6010C	303771
680-96229-3	CPA-C-MHU-1113	Total Recoverable	Water	6010C	303771
680-96229-4	CPA-C-MHU-F(0.2)-1113	Dissolved	Water	6010C	303771
680-96229-5	CPA-C-DHU-1113	Total Recoverable	Water	6010C	303771
680-96229-6	CPA-C-DHU-F(0.2)-1113	Dissolved	Water	6010C	303771
LCS 680-303771/2-A	Lab Control Sample	Total Recoverable	Water	6010C	303771
MB 680-303771/1-A	Method Blank	Total Recoverable	Water	6010C	303771

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

General Chemistry

Analysis Batch: 303565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total/NA	Water	353.2	
680-96229-3	CPA-C-MHU-1113	Total/NA	Water	353.2	
680-96229-5	CPA-C-DHU-1113	Total/NA	Water	353.2	
680-96229-5 MS	CPA-C-DHU-1113	Total/NA	Water	353.2	
680-96229-5 MSD	CPA-C-DHU-1113	Total/NA	Water	353.2	
LCS 680-303565/14	Lab Control Sample	Total/NA	Water	353.2	
MB 680-303565/13	Method Blank	Total/NA	Water	353.2	

Analysis Batch: 304433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total/NA	Water	325.2	
680-96229-3	CPA-C-MHU-1113	Total/NA	Water	325.2	
680-96229-5	CPA-C-DHU-1113	Total/NA	Water	325.2	
LCS 680-304433/28	Lab Control Sample	Total/NA	Water	325.2	
MB 680-304433/47	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 304984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total/NA	Water	375.4	
680-96229-3	CPA-C-MHU-1113	Total/NA	Water	375.4	
680-96229-5	CPA-C-DHU-1113	Total/NA	Water	375.4	
LCS 680-304984/17	Lab Control Sample	Total/NA	Water	375.4	
MB 680-304984/18	Method Blank	Total/NA	Water	375.4	

Analysis Batch: 305471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total/NA	Water	310.1	
680-96229-3	CPA-C-MHU-1113	Total/NA	Water	310.1	
680-96229-5	CPA-C-DHU-1113	Total/NA	Water	310.1	
LCS 680-305471/4	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-305471/22	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-305471/3	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 305596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-1	CPA-C-SHU-1113	Total/NA	Water	415.1	
680-96229-1 DU	CPA-C-SHU-1113	Total/NA	Water	415.1	
680-96229-3	CPA-C-MHU-1113	Total/NA	Water	415.1	
680-96229-5	CPA-C-DHU-1113	Total/NA	Water	415.1	
LCS 680-305596/5	Lab Control Sample	Total/NA	Water	415.1	
MB 680-305596/2	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 306025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-4	CPA-C-MHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96229-6	CPA-C-DHU-F(0.2)-1113	Dissolved	Water	415.1	
LCS 680-306028/1-A	Lab Control Sample	Dissolved	Water	415.1	306028
MB 680-306028/2-A	Method Blank	Dissolved	Water	415.1	306028

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

General Chemistry (Continued)

Filtration Batch: 306028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-306028/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
MB 680-306028/2-A	Method Blank	Dissolved	Water	FILTRATION	

Analysis Batch: 306228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96229-2	CPA-C-SHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96229-2 MS	CPA-C-SHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96229-2 MSD	CPA-C-SHU-F(0.2)-1113	Dissolved	Water	415.1	
LCS 680-306244/1-A	Lab Control Sample	Dissolved	Water	415.1	306244
MB 680-306244/2-A	Method Blank	Dissolved	Water	415.1	306244

Filtration Batch: 306244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-306244/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
MB 680-306244/2-A	Method Blank	Dissolved	Water	FILTRATION	

Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-SHU-1113

Lab Sample ID: 680-96229-1

Date Collected: 11/14/13 11:40

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	304112	11/20/13 14:49	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	304275	11/21/13 14:47	TAR	TAL SAV
Total Recoverable	Prep	3005A			303771	11/18/13 11:24	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	304177	11/19/13 19:04	BCB	TAL SAV
Total/NA	Analysis	353.2		2	303565	11/15/13 18:24	CRW	TAL SAV
Total/NA	Analysis	325.2		5	304433	11/21/13 10:51	JME	TAL SAV
Total/NA	Analysis	375.4		50	304984	11/25/13 12:44	JME	TAL SAV
Total/NA	Analysis	310.1		1	305471	11/27/13 16:31	LBH	TAL SAV
Total/NA	Analysis	415.1		5	305596	11/29/13 16:56	CMP	TAL SAV

Client Sample ID: CPA-C-SHU-F(0.2)-1113

Lab Sample ID: 680-96229-2

Date Collected: 11/14/13 11:40

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303771	11/18/13 11:24	BJB	TAL SAV
Dissolved	Analysis	6010C		1	304177	11/19/13 19:18	BCB	TAL SAV
Dissolved	Analysis	415.1		1	306228	12/04/13 20:02	CMP	TAL SAV

Client Sample ID: CPA-C-MHU-1113

Lab Sample ID: 680-96229-3

Date Collected: 11/14/13 14:30

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2500	304112	11/20/13 15:33	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	304275	11/21/13 14:34	TAR	TAL SAV
Total Recoverable	Prep	3005A			303771	11/18/13 11:24	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	304177	11/19/13 19:22	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303565	11/15/13 18:21	CRW	TAL SAV
Total/NA	Analysis	325.2		10	304433	11/21/13 10:54	JME	TAL SAV
Total/NA	Analysis	375.4		20	304984	11/25/13 12:30	JME	TAL SAV
Total/NA	Analysis	310.1		1	305471	11/27/13 16:40	LBH	TAL SAV
Total/NA	Analysis	415.1		1	305596	11/29/13 17:25	CMP	TAL SAV

Client Sample ID: CPA-C-MHU-F(0.2)-1113

Lab Sample ID: 680-96229-4

Date Collected: 11/14/13 14:30

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303771	11/18/13 11:24	BJB	TAL SAV
Dissolved	Analysis	6010C		1	304177	11/19/13 19:36	BCB	TAL SAV

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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: CPA-C-MHU-F(0.2)-1113

Lab Sample ID: 680-96229-4

Date Collected: 11/14/13 14:30

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	306025	12/02/13 14:49	CMP	TAL SAV

Client Sample ID: CPA-C-DHU-1113

Lab Sample ID: 680-96229-5

Date Collected: 11/14/13 15:45

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	304112	11/20/13 15:11	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	304275	11/21/13 14:21	TAR	TAL SAV
Total Recoverable	Prep	3005A			303771	11/18/13 11:24	BJB	TAL SAV
Total Recoverable	Analysis	6010C		1	304177	11/19/13 19:41	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303565	11/15/13 18:18	CRW	TAL SAV
Total/NA	Analysis	325.2		1	304433	11/21/13 10:03	JME	TAL SAV
Total/NA	Analysis	375.4		5	304984	11/25/13 12:32	JME	TAL SAV
Total/NA	Analysis	310.1		1	305471	11/27/13 16:48	LBH	TAL SAV
Total/NA	Analysis	415.1		1	305596	11/29/13 17:39	CMP	TAL SAV

Client Sample ID: CPA-C-DHU-F(0.2)-1113

Lab Sample ID: 680-96229-6

Date Collected: 11/14/13 15:45

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303771	11/18/13 11:24	BJB	TAL SAV
Dissolved	Analysis	6010C		1	304177	11/19/13 19:55	BCB	TAL SAV
Dissolved	Analysis	415.1		1	306025	12/02/13 15:03	CMP	TAL SAV

Client Sample ID: CPA-C-MHU-1113-EB

Lab Sample ID: 680-96229-7

Date Collected: 11/14/13 13:30

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304112	11/20/13 12:14	JD1	TAL SAV

Client Sample ID: CPA-C-DHU-1113-AD

Lab Sample ID: 680-96229-8

Date Collected: 11/14/13 15:45

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		200	304112	11/20/13 16:18	JD1	TAL SAV

TestAmerica Savannah

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Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Client Sample ID: 4Q13 CPA Trip Blank #3

Lab Sample ID: 680-96229-9

Date Collected: 11/14/13 00:00

Matrix: Water

Date Received: 11/15/13 09:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304112	11/20/13 11:07	JD1	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Savannah

DEC 12 2013

5102 LaRoche Avenue

phone 912.354.7858 fax 912.352.0165

Chain of Custody Record

TestAmerica
THE LEADER IN ENTERPRISE TESTING

TestAmerica Laboratories, Inc.

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		COC No.	
URS Corporation 1001 Highlands Plaza Drive West, Suite 300 St. Louis, MO 63110 Phone (314) 429-0100 Fax (314) 429-0462 Project Name: 4013 CPA GW Sampling Site: Solutia WG Krummrich Facility PO#		Tel/Fax: (314) 743-4108 Analysis Turnaround Time Calendar (C) or Work Days (W) <input checked="" type="checkbox"/> TAT if different from Below: <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Lab Contact: Michele Kersey Carrier: FedEx		Job No. 21567962-00004 SDG No.	
Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.	Sample Specific Notes:	
CPA-C-SHU-1113 ✓	11/14/13	1140	G	Water	12	VOCs by 8260 Total Re/Mn by 6010B Alk/CO2 by 310.1 Chloride by 325.2/Sulfate by 375.4 Nitrate by 353.2 TOC by 415.1 Dissolved Re/Mn by 6010B DOC by 415.1	
CPA-C-SHU-F(0.2)-1113 ✓		1140	G	Water	2	1 1	
CPA-C-MHU-1113 ✓		1430	G	Water	12	3 1 1 1 3 2 1	
CPA-C-MHU-F(0.2)-1113 ✓		1430	G	Water	2	1 1	
CPA-C-DHU-1113 ✓		1545	G	Water	12	3 1 1 1 3 2 1	
CPA-C-DHU-F(0.2)-1113 ✓		1545	G	Water	2	1 1	
CPA-C-DHU-1113 ✓			G	Water	12	3 1 1 1 3 2 1	
CPA-C-DHU-F(0.2)-1113 ✓			G	Water	2	1 1	
CPA-C-MHU-1113-EB ✓	11/14/13	1330	G	Water	3	3	
CPA-C-DHU-1113-AD ✓	11/14/13	1545	G	Water	3	3	
4013 CPA Trip Blank #3				Water	2	2	
Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Volatile <input type="checkbox"/> Brown							
Special Instructions/QC Requirements & Comments:							
Date/Time: 11/15/13 0931 Company: TFS Received by: [Signature] Retained by: [Signature] Relinquished by: [Signature]							

DEC 12 2013

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-96229-1

SDG Number: KPS104

Login Number: 96229

List Source: TestAmerica Savannah

List Number: 1

Creator: Banda, Christy S

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96229-1
SDG: KPS104

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-15
A2LA	ISO/IEC 17025		399.01	02-28-15
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	88-0692	02-01-14
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-13 *
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	12-31-13 *
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	06-17-14
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-13 *
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky	State Program	4	90084	12-31-13 *
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	30690	06-30-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-13 *
Massachusetts	State Program	1	M-GA006	06-30-14
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-14 *
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	04-01-14
North Carolina DENR	State Program	4	269	12-31-13 *
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	01-01-14 *
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia	State Program	3	9950C	12-31-13 *
West Virginia DEP	State Program	3	94	06-30-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Savannah

DEC 12 2013

4Q 2013 CPA Data Review

Laboratory SDG: KPS105

Data Reviewer: Melissa Mansker

Peer Reviewer: Elizabeth Kunkel

Date Reviewed: 12/13/2013

Guidance: USEPA National Functional Guidelines for Superfund Organic Methods Data Review 2008. USEPA National Functional Guidelines for Superfund Inorganic Data Review 2010

Work Plan: Revised Long-Term Monitoring Program (LTMP) Work Plan (Solutia 2009)

Sample Identification	
CPA-D-SHU-1113	CPA-D-SHU-F(0.2)-1113
CPA-D-MHU-1113	CPA-D-MHU-F(0.2)-1113
CPA-D-DHU-1113	CPA-D-DHU-F(0.2)-1113
CPA-D-DHU-1113-AD	4Q13 CPA Trip Blank #4

1.0 Data Package Completeness

Were all items delivered as specified in the QAPP and COC as appropriate?

Yes

2.0 Laboratory Case Narrative \ Cooler Receipt Form

Were problems noted in the laboratory case narrative or cooler receipt form?

Yes, the laboratory case narrative indicated the nitrate LCS recovery was outside evaluation criteria. The VOC surrogate recovery for dibromofluoromethane was outside evaluation criteria in sample 4Q13 CPA Trip Blank #4. Sulfate MS/MSD recoveries in sample CPA-D-MHU-1113 could not be evaluated because the sample concentrations were greater than four times (4X) the matrix spike concentration. Samples were diluted due to high levels of target analytes. Calibration recoveries were outside evaluation criteria for nitrate in several samples. These issues are addressed further in the appropriate sections below.

The cooler receipt form indicated that one of one cooler was received by the laboratory at a temperature of 1.8°C, which is outside the 4°C ± 2°C criteria. The samples were received in good condition; therefore no qualification of data was required.

3.0 Holding Times

Were samples extracted/analyzed within applicable limits?

Yes

4.0 Blank Contamination

Were any analytes detected in the Method Blanks, Field Blanks or Trip Blanks?

No

5.0 Laboratory Control Sample

Were LCS recoveries within evaluation criteria?

No

LCS ID	Parameter	Analyte	LCS Recovery	LCS Criteria
LCS 680-303622/14	General chemistry	Nitrate	113	90-110

Analytical data that required qualification based on LCS data are included in the table below. Analytical data reported as non-detect and associated with LCS recoveries above evaluation criteria, indicating a possible high bias, did not require qualification.

Sample ID	Parameter	Analyte	Qualification
CPA-D-SHU-1113	General chemistry	Nitrate	J

6.0 Surrogate Recoveries

Were surrogate recoveries within evaluation criteria?

No

Sample ID	Parameter	Surrogate	Recovery	Criteria
4Q13 CPA Trip Blank #4	VOCs	Dibromofluoromethane	131	70-130

Analytical data reported as non-detect and associated with surrogate recoveries above evaluation criteria, indicating a possible high bias, did not require qualification. Sample 4Q13 CPA Trip Blank #4 is a quality control sample and is not qualified. No qualification of data was required.

7.0 Matrix Spike and Matrix Spike Duplicate Recoveries

Were MS/MSD samples collected as part of this SDG?

Yes, although not requested, sample CPA-D-DHU-F(0.2)-1113 was spiked and analyzed for dissolved metals, sample CPA-D-DHU-1113 was spiked and analyzed for nitrate, and sample CPA-D-MHU-1113 was spiked and analyzed for sulfate.

Were MS/MSD recoveries within evaluation criteria?

No

MS/MSD ID	Parameter	Analyte	MS/MSD Recovery (%)	RPD	MS/MSD/ RPD Criteria
CPA-D-MHU-1113	General chemistry	Sulfate	93/50	4	75-125/30

Sulfate MS/MSD recoveries in sample CPA-D-MHU-1113 could not be evaluated because the sample concentrations were greater than four times (4X) the matrix spike

concentration. No qualification of data was required.

8.0 Internal Standard (IS) Recoveries

Were internal standard area recoveries within evaluation criteria?

Yes

9.0 Laboratory Duplicate Results

Were laboratory duplicate samples collected as part of this SDG?

Yes, sample CPA-D-SHU-1113 was duplicated and analyzed for alkalinity and free carbon dioxide, sample CPA-D-DHU-1113 was duplicated and analyzed for sulfate, and sample CPA-D-MHU-F(0.2)-1113 was duplicated and analyzed for dissolved organic carbon.

Were laboratory duplicate sample RPDs within criteria?

Yes

10.0 Field Duplicate Results

Were field duplicate samples collected as part of this SDG?

Yes

Field ID	Field Duplicate ID
CPA-D-DHU-1113	CPA-D-DHU-1113-AD

Were field duplicates within evaluation criteria?

Yes

11.0 Sample Dilutions

For samples that were diluted and nondetect, were undiluted results also reported?

Not applicable; analytes were detected in samples that were diluted.

12.0 Additional Qualifications

Were additional qualifications applied?

Yes, calibration recoveries were outside evaluation criteria for nitrate in the following samples; data qualifications are included below.

Sample ID	Parameter	Analyte	Qualification
CPA-D-MHU-1113	General chemistry	Nitrate	UJ
CPA-D-SHU-1113	General chemistry	Nitrate	UJ

SDG KPS105

Results of Samples from Monitoring Wells:

CPA-D-SHU
CPA-D-MHU
CPA-D-DHU

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Savannah
5102 LaRoche Avenue
Savannah, GA 31404
Tel: (912)354-7858

TestAmerica Job ID: 680-96268-1
TestAmerica Sample Delivery Group: KPS105
Client Project/Site: WGK - CPA GW 4Q13

For:
Solutia Inc.
575 Maryville Centre Dr.
Saint Louis, Missouri 63141

Attn: Mr. Jerry Rinaldi

Michele Kersey

Authorized for release by:
12/9/2013 4:49:58 PM

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*Reviewed on
DEC 13 2013*

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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DEC 13 2013 *UM*

Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Job ID: 680-96268-1

Laboratory: TestAmerica Savannah

Narrative

CASE NARRATIVE

Client: Solutia Inc.

Project: WGK - CPA GW 4Q13

Report Number: 680-96268-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 11/16/2013 8:57 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.8° C.

VOLATILE ORGANIC COMPOUNDS (GC-MS)

Samples CPA-D-SHU-1113 (680-96268-1), CPA-D-MHU-1113 (680-96268-3), CPA-D-DHU-1113 (680-96268-5), CPA-D-DHU-1113-AD (680-96268-7) and 4Q13 CPA Trip Blank #4 (680-96268-8) were analyzed for Volatile Organic Compounds (GC-MS) in accordance with EPA SW-846 Method 8260B. The samples were analyzed on 11/20/2013 and 11/21/2013.

Surrogate recovery for the following sample was outside the upper control limit: 4Q13 CPA Trip Blank #4 (680-96268-8). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Refer to the QC report for details.

Samples CPA-D-SHU-1113 (680-96268-1)[2000X], CPA-D-MHU-1113 (680-96268-3)[500X], CPA-D-DHU-1113 (680-96268-5)[250X] and CPA-D-DHU-1113-AD (680-96268-7)[250X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the volatiles analysis.

All other quality control parameters were within the acceptance limits.

DISSOLVED GASES

Samples CPA-D-SHU-1113 (680-96268-1), CPA-D-MHU-1113 (680-96268-3) and CPA-D-DHU-1113 (680-96268-5) were analyzed for dissolved gases in accordance with RSK-175. The samples were analyzed on 11/21/2013 and 11/22/2013.

No difficulties were encountered during the dissolved gases analysis.

All quality control parameters were within the acceptance limits.

METALS (ICP)

Samples CPA-D-SHU-F(0.2)-1113 (680-96268-2), CPA-D-MHU-F(0.2)-1113 (680-96268-4) and CPA-D-DHU-F(0.2)-1113 (680-96268-6) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/18/2013 and analyzed

DEC 13 2013



Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Job ID: 680-96268-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

on 11/22/2013.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

METALS (ICP)

Samples CPA-D-SHU-1113 (680-96268-1), CPA-D-MHU-1113 (680-96268-3) and CPA-D-DHU-1113 (680-96268-5) were analyzed for Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 11/18/2013 and analyzed on 11/22/2013.

No difficulties were encountered during the metals analysis.

All quality control parameters were within the acceptance limits.

ALKALINITY

Samples CPA-D-SHU-1113 (680-96268-1), CPA-D-MHU-1113 (680-96268-3) and CPA-D-DHU-1113 (680-96268-5) were analyzed for alkalinity in accordance with EPA Method 310.1. The samples were analyzed on 11/27/2013.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

CHLORIDE

Samples CPA-D-SHU-1113 (680-96268-1), CPA-D-MHU-1113 (680-96268-3) and CPA-D-DHU-1113 (680-96268-5) were analyzed for Chloride in accordance with EPA Method 325.2. The samples were analyzed on 11/21/2013.

Samples CPA-D-SHU-1113 (680-96268-1)[5X] and CPA-D-MHU-1113 (680-96268-3)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the chloride analysis.

All quality control parameters were within the acceptance limits.

NITRATE-NITRITE AS NITROGEN

Samples CPA-D-SHU-1113 (680-96268-1), CPA-D-MHU-1113 (680-96268-3) and CPA-D-DHU-1113 (680-96268-5) were analyzed for nitrate-nitrite as nitrogen in accordance with EPA Method 353.2. The samples were analyzed on 11/16/2013.

The nitrate result is obtained from a calculation incorporating the nitrate+nitrite and nitrite results. Re-analysis is not performed if QC for the calculated analyte does not meet acceptance criteria, provided the QC results for the component analytes are acceptable. Data have been qualified to denote this situation.

Sample CPA-D-SHU-1113 (680-96268-1)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the nitrate-nitrite analysis.

All other quality control parameters were within the acceptance limits.

SULFATE

Samples CPA-D-SHU-1113 (680-96268-1), CPA-D-MHU-1113 (680-96268-3) and CPA-D-DHU-1113 (680-96268-5) were analyzed for sulfate in accordance with EPA Method 375.4. The samples were analyzed on 11/25/2013.

The matrix spike duplicate (MSD) recoveries for batch 304984 were outside control limits. The associated laboratory control sample (LCS) recovery met acceptance criteria.

Refer to the QC report for details.

DEC 13 2013

Case Narrative

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Job ID: 680-96268-1 (Continued)

Laboratory: TestAmerica Savannah (Continued)

Samples CPA-D-SHU-1113 (680-96268-1)[100X] and CPA-D-MHU-1113 (680-96268-3)[10X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the sulfate analysis.

All other quality control parameters were within the acceptance limits.

TOTAL ORGANIC CARBON

Samples CPA-D-SHU-1113 (680-96268-1), CPA-D-MHU-1113 (680-96268-3) and CPA-D-DHU-1113 (680-96268-5) were analyzed for total organic carbon in accordance with EPA Method 415.1. The samples were analyzed on 11/29/2013.

Sample CPA-D-SHU-1113 (680-96268-1)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the TOC analysis.

All quality control parameters were within the acceptance limits.

DISSOLVED ORGANIC CARBON (DOC)

Samples CPA-D-SHU-F(0.2)-1113 (680-96268-2), CPA-D-MHU-F(0.2)-1113 (680-96268-4) and CPA-D-DHU-F(0.2)-1113 (680-96268-6) were analyzed for Dissolved Organic Carbon (DOC) in accordance with EPA Method 415.1. The samples were analyzed on 12/02/2013 and 12/04/2013.

Sample CPA-D-SHU-F(0.2)-1113 (680-96268-2)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No difficulties were encountered during the DOC analysis.

All quality control parameters were within the acceptance limits.

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TestAmerica Savannah

Sample Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
680-96268-1	CPA-D-SHU-1113 ✓	Water	11/15/13 12:00	11/16/13 08:57
680-96268-2	CPA-D-SHU-F(0.2)-1113 ✓	Water	11/15/13 12:00	11/16/13 08:57
680-96268-3	CPA-D-MHU-1113 ✓	Water	11/15/13 12:50	11/16/13 08:57
680-96268-4	CPA-D-MHU-F(0.2)-1113 ✓	Water	11/15/13 12:50	11/16/13 08:57
680-96268-5	CPA-D-DHU-1113 ✓	Water	11/15/13 13:45	11/16/13 08:57
680-96268-6	CPA-D-DHU-F(0.2)-1113 ✓	Water	11/15/13 13:45	11/16/13 08:57
680-96268-7	CPA-D-DHU-1113-AD ✓	Water	11/15/13 13:45	11/16/13 08:57
680-96268-8	4Q13 CPA Trip Blank #4 ✓	Water	11/15/13 00:00	11/16/13 08:57

DEC 18 2013 

TestAmerica Savannah

Method Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL SAV
RSK-175	Dissolved Gases (GC)	RSK	TAL SAV
6010C	Metals (ICP)	SW846	TAL SAV
310.1	Alkalinity	MCAWW	TAL SAV
325.2	Chloride	MCAWW	TAL SAV
353.2	Nitrogen, Nitrate-Nitrite	MCAWW	TAL SAV
375.4	Sulfate	MCAWW	TAL SAV
415.1	TOC	MCAWW	TAL SAV
415.1	DOC	MCAWW	TAL SAV

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

DEC 13 2013

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TestAmerica Savannah

Definitions/Glossary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
X	Surrogate is outside control limits

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

General Chemistry

Qualifier	Qualifier Description
*	LCS or LCSD exceeds the control limits
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC exceeds the control limits.
U	Indicates the analyte was analyzed for but not detected.
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

DEC 13 2013

TestAmerica Savannah

Detection Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-SHU-1113

Lab Sample ID: 680-96268-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	6200		2000		ug/L	2000		8260B	Total/NA
Chlorobenzene	160000		2000		ug/L	2000		8260B	Total/NA
Methane	2.6		0.58		ug/L	1		RSK-175	Total/NA
Iron	89		0.050		mg/L	1		6010C	Total
Manganese	2.7		0.010		mg/L	1		6010C	Total
									Recoverable
Chloride	300		5.0		mg/L	5		325.2	Total/NA
Nitrate as N	17		0.50		mg/L	10		353.2	Total/NA
Sulfate	2200		500		mg/L	100		375.4	Total/NA
Total Organic Carbon	150		5.0		mg/L	5		415.1	Total/NA

Client Sample ID: CPA-D-SHU-F(0.2)-1113

Lab Sample ID: 680-96268-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	94		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	2.8		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	130		5.0		mg/L	5		415.1	Dissolved

Client Sample ID: CPA-D-MHU-1113

Lab Sample ID: 680-96268-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	6900		500		ug/L	500		8260B	Total/NA
Chlorobenzene	53000		500		ug/L	500		8260B	Total/NA
1,2-Dichlorobenzene	20000		500		ug/L	500		8260B	Total/NA
1,3-Dichlorobenzene	1200		500		ug/L	500		8260B	Total/NA
1,4-Dichlorobenzene	16000		500		ug/L	500		8260B	Total/NA
Ethane	9.4		1.1		ug/L	1		RSK-175	Total/NA
Methane (TCD)	5700		390		ug/L	1		RSK-175	Total/NA
Iron	0.56		0.050		mg/L	1		6010C	Total
									Recoverable
Manganese	1.2		0.010		mg/L	1		6010C	Total
									Recoverable
Chloride	290		5.0		mg/L	5		325.2	Total/NA
Sulfate	180		50		mg/L	10		375.4	Total/NA
Total Organic Carbon	41		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	530		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	61		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-D-MHU-F(0.2)-1113

Lab Sample ID: 680-96268-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.33		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	1.3		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	42		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-D-DHU-1113

Lab Sample ID: 680-96268-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	380		250		ug/L	250		8260B	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

DEC 13 2013

Detection Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-DHU-1113 (Continued)

Lab Sample ID: 680-96268-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chlorobenzene	22000		250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	2900		250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	420		250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	2800		250		ug/L	250		8260B	Total/NA
Ethane	6.3		1.1		ug/L	1		RSK-175	Total/NA
Methane	310		0.58		ug/L	1		RSK-175	Total/NA
Iron	0.17		0.050		mg/L	1		6010C	Total
Manganese	0.33		0.010		mg/L	1		6010C	Recoverable Total
Chloride	70		1.0		mg/L	1		325.2	Recoverable Total/NA
Sulfate	20		5.0		mg/L	1		375.4	Total/NA
Total Organic Carbon	39		1.0		mg/L	1		415.1	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	500		5.0		mg/L	1		310.1	Total/NA
Carbon Dioxide, Free	41		5.0		mg/L	1		310.1	Total/NA

Client Sample ID: CPA-D-DHU-F(0.2)-1113

Lab Sample ID: 680-96268-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Iron, Dissolved	0.13		0.050		mg/L	1		6010C	Dissolved
Manganese, Dissolved	0.34		0.010		mg/L	1		6010C	Dissolved
Dissolved Organic Carbon	41		1.0		mg/L	1		415.1	Dissolved

Client Sample ID: CPA-D-DHU-1113-AD

Lab Sample ID: 680-96268-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	370		250		ug/L	250		8260B	Total/NA
Chlorobenzene	23000		250		ug/L	250		8260B	Total/NA
1,2-Dichlorobenzene	2900		250		ug/L	250		8260B	Total/NA
1,3-Dichlorobenzene	430		250		ug/L	250		8260B	Total/NA
1,4-Dichlorobenzene	2700		250		ug/L	250		8260B	Total/NA


Client Sample ID: 4Q13 CPA Trip Blank #4

Lab Sample ID: 680-96268-8

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Savannah

DEC 13 2013 

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-SHU-1113

Lab Sample ID: 680-96268-1

Date Collected: 11/15/13 12:00

Matrix: Water

Date Received: 11/16/13 08:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	6200		2000		ug/L			11/21/13 14:08	2000
Chlorobenzene	160000		2000		ug/L			11/21/13 14:08	2000
1,2-Dichlorobenzene	2000	U	2000		ug/L			11/21/13 14:08	2000
1,3-Dichlorobenzene	2000	U	2000		ug/L			11/21/13 14:08	2000
1,4-Dichlorobenzene	2000	U	2000		ug/L			11/21/13 14:08	2000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	93		70 - 130		11/21/13 14:08	2000
Dibromofluoromethane	99		70 - 130		11/21/13 14:08	2000
Toluene-d8 (Surr)	93		70 - 130		11/21/13 14:08	2000

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/21/13 11:35	1
Ethylene	1.0	U	1.0		ug/L			11/21/13 11:35	1
Methane	2.6		0.58		ug/L			11/21/13 11:35	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	89		0.050		mg/L		11/18/13 15:46	11/22/13 08:51	1
Manganese	2.7		0.010		mg/L		11/18/13 15:46	11/22/13 08:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	300		5.0		mg/L			11/21/13 10:51	5
Nitrate as N	17	^ J	0.50		mg/L			11/16/13 14:54	10
Sulfate	2200		500		mg/L			11/25/13 13:21	100
Total Organic Carbon	150		5.0		mg/L			11/29/13 19:03	5

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	5.0	U	5.0		mg/L			11/27/13 17:15	1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/27/13 17:15	1

TestAmerica Savannah

DEC 13 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-SHU-F(0.2)-1113

Lab Sample ID: 680-96268-2

Date Collected: 11/15/13 12:00

Matrix: Water

Date Received: 11/16/13 08:57

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	94		0.050		mg/L		11/18/13 15:46	11/22/13 09:05	1
Manganese, Dissolved	2.8		0.010		mg/L		11/18/13 15:46	11/22/13 09:05	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	130		5.0		mg/L			12/04/13 20:47	5

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DEC 13 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-MHU-1113

Lab Sample ID: 680-96268-3

Date Collected: 11/15/13 12:50

Matrix: Water

Date Received: 11/16/13 08:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	6900		500		ug/L			11/21/13 20:23	500
Chlorobenzene	53000		500		ug/L			11/21/13 20:23	500
1,2-Dichlorobenzene	20000		500		ug/L			11/21/13 20:23	500
1,3-Dichlorobenzene	1200		500		ug/L			11/21/13 20:23	500
1,4-Dichlorobenzene	16000		500		ug/L			11/21/13 20:23	500

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		70 - 130		11/21/13 20:23	500
Dibromofluoromethane	101		70 - 130		11/21/13 20:23	500
Toluene-d8 (Surr)	96		70 - 130		11/21/13 20:23	500

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	9.4		1.1		ug/L			11/22/13 13:40	1
Ethylene	1.0	U	1.0		ug/L			11/22/13 13:40	1
Methane (TCD)	5700		390		ug/L			11/22/13 13:40	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.56		0.050		mg/L		11/16/13 15:46	11/22/13 09:10	1
Manganese	1.2		0.010		mg/L		11/16/13 15:46	11/22/13 09:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	290		5.0		mg/L			11/21/13 10:51	5
Nitrate as N	0.050	U ^ uJ	0.050		mg/L			11/16/13 14:55	1
Sulfate	180		50		mg/L			11/25/13 12:23	10
Total Organic Carbon	41		1.0		mg/L			11/29/13 19:17	1
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	530		5.0		mg/L			11/27/13 17:46	1
Carbon Dioxide, Free	61		5.0		mg/L			11/27/13 17:46	1

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DEC 13 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-MHU-F(0.2)-1113

Lab Sample ID: 680-96268-4

Date Collected: 11/15/13 12:50

Matrix: Water

Date Received: 11/16/13 08:57

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.33		0.050		mg/L		11/18/13 15:46	11/22/13 09:24	1
Manganese, Dissolved	1.3		0.010		mg/L		11/18/13 15:46	11/22/13 09:24	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	42		1.0		mg/L			12/02/13 16:08	1

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DEC 18 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-DHU-1113

Lab Sample ID: 680-96268-5

Date Collected: 11/15/13 13:45

Matrix: Water

Date Received: 11/16/13 08:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	380		250		ug/L			11/20/13 17:02	250
Chlorobenzene	22000		250		ug/L			11/20/13 17:02	250
1,2-Dichlorobenzene	2900		250		ug/L			11/20/13 17:02	250
1,3-Dichlorobenzene	420		250		ug/L			11/20/13 17:02	250
1,4-Dichlorobenzene	2800		250		ug/L			11/20/13 17:02	250

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	100		70 - 130		11/20/13 17:02	250
Dibromofluoromethane	130		70 - 130		11/20/13 17:02	250
Toluene-d8 (Surr)	100		70 - 130		11/20/13 17:02	250

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	6.3		1.1		ug/L			11/22/13 13:53	1
Ethylene	1.0	U	1.0		ug/L			11/22/13 13:53	1
Methane	310		0.58		ug/L			11/22/13 13:53	1

Method: 6010C - Metals (ICP) - Total Recoverable

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron	0.17		0.050		mg/L		11/18/13 15:46	11/22/13 09:28	1
Manganese	0.33		0.010		mg/L		11/18/13 15:46	11/22/13 09:28	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	70		1.0		mg/L			11/21/13 10:03	1
Nitrate as N	0.050	U ^ ^ UJ	0.050		mg/L			11/16/13 14:49	1
Sulfate	20		5.0		mg/L			11/25/13 11:19	1
Total Organic Carbon	39		1.0		mg/L			11/29/13 20:02	1
Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	500		5.0		mg/L			11/27/13 17:32	1
Carbon Dioxide, Free	41		5.0		mg/L			11/27/13 17:32	1

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DEC 18 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-DHU-F(0.2)-1113

Lab Sample ID: 680-96268-6

Date Collected: 11/15/13 13:45

Matrix: Water

Date Received: 11/16/13 08:57

Method: 6010C - Metals (ICP) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Iron, Dissolved	0.13		0.050		mg/L		11/18/13 15:46	11/22/13 09:33	1
Manganese, Dissolved	0.34		0.010		mg/L		11/18/13 15:46	11/22/13 09:33	1

General Chemistry - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	41		1.0		mg/L			12/02/13 16:33	1

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DEC 13 2013

Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-DHU-1113-AD

Lab Sample ID: 680-96268-7

Date Collected: 11/15/13 13:45

Matrix: Water


Date Received: 11/16/13 08:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	370		250		ug/L			11/20/13 17:25	250
Chlorobenzene	23000		250		ug/L			11/20/13 17:25	250
1,2-Dichlorobenzene	2900		250		ug/L			11/20/13 17:25	250
1,3-Dichlorobenzene	430		250		ug/L			11/20/13 17:25	250
1,4-Dichlorobenzene	2700		250		ug/L			11/20/13 17:25	250

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	103		70 - 130		11/20/13 17:25	250
Dibromofluoromethane	123		70 - 130		11/20/13 17:25	250
Toluene-d8 (Surr)	93		70 - 130		11/20/13 17:25	250

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Client Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: 4Q13 CPA Trip Blank #4

Lab Sample ID: 680-96268-8

Date Collected: 11/15/13 00:00

Matrix: Water


Date Received: 11/16/13 08:57

Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 11:30	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:30	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:30	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:30	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 11:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	101		70 - 130		11/20/13 11:30	1
Dibromofluoromethane	131	X	70 - 130		11/20/13 11:30	1
Toluene-d8 (Surr)	98		70 - 130		11/20/13 11:30	1

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Surrogate Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		BFB (70-130)	DBFM (70-130)	TOL (70-130)
680-96268-1	CPA-D-SHU-1113	93	99	93
680-96268-3	CPA-D-MHU-1113	99	101	96
680-96268-5	CPA-D-DHU-1113	100	130	100
680-96268-7	CPA-D-DHU-1113-AD	103	123	93
680-96268-8	4Q13 CPA Trip Blank #4	101	131 X	98
LCS 680-304112/3	Lab Control Sample	107	125	103
LCS 680-304347/4	Lab Control Sample	94	98	97
LCS 680-304391/4	Lab Control Sample	87	94	101
LCSD 680-304112/4	Lab Control Sample Dup	110	118	103
LCSD 680-304347/5	Lab Control Sample Dup	98	98	97
LCSD 680-304391/5	Lab Control Sample Dup	89	97	102
MB 680-304112/7	Method Blank	104	127	95
MB 680-304347/7	Method Blank	99	98	95
MB 680-304391/8	Method Blank	91	108	96

Surrogate Legend

BFB = 4-Bromofluorobenzene
DBFM = Dibromofluoromethane
TQL = Toluene-d8 (Surr)

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DEC 13 2013

QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: 8260B - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 680-304112/7
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
Chlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/20/13 09:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	104		70 - 130		11/20/13 09:53	1
Dibromofluoromethane	127		70 - 130		11/20/13 09:53	1
Toluene-d8 (Surr)	95		70 - 130		11/20/13 09:53	1

Lab Sample ID: LCS 680-304112/3
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	50.6		ug/L		101	74 - 123
Chlorobenzene	50.0	53.9		ug/L		108	79 - 120
1,2-Dichlorobenzene	50.0	50.5		ug/L		101	77 - 124
1,3-Dichlorobenzene	50.0	48.9		ug/L		98	79 - 123
1,4-Dichlorobenzene	50.0	51.5		ug/L		103	76 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	107		70 - 130
Dibromofluoromethane	125		70 - 130
Toluene-d8 (Surr)	103		70 - 130

Lab Sample ID: LCSD 680-304112/4
Matrix: Water
Analysis Batch: 304112

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	50.0	51.6		ug/L		103	74 - 123	2	30
Chlorobenzene	50.0	50.9		ug/L		102	79 - 120	6	30
1,2-Dichlorobenzene	50.0	51.6		ug/L		103	77 - 124	2	30
1,3-Dichlorobenzene	50.0	50.2		ug/L		100	79 - 123	3	30
1,4-Dichlorobenzene	50.0	51.7		ug/L		103	76 - 124	0	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	110		70 - 130
Dibromofluoromethane	118		70 - 130
Toluene-d8 (Surr)	103		70 - 130

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-304347/7
Matrix: Water
Analysis Batch: 304347

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/21/13 12:07	1
Chlorobenzene	1.0	U	1.0		ug/L			11/21/13 12:07	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 12:07	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 12:07	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 12:07	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	99		70 - 130		11/21/13 12:07	1
Dibromofluoromethane	98		70 - 130		11/21/13 12:07	1
Toluene-d8 (Surr)	95		70 - 130		11/21/13 12:07	1

Lab Sample ID: LCS 680-304347/4
Matrix: Water
Analysis Batch: 304347

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	49.9		ug/L		100	74 - 123
Chlorobenzene	50.0	51.2		ug/L		102	79 - 120
1,2-Dichlorobenzene	50.0	51.9		ug/L		104	77 - 124
1,3-Dichlorobenzene	50.0	51.6		ug/L		103	79 - 123
1,4-Dichlorobenzene	50.0	53.1		ug/L		106	76 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	94		70 - 130
Dibromofluoromethane	98		70 - 130
Toluene-d8 (Surr)	97		70 - 130

Lab Sample ID: LCSD 680-304347/5
Matrix: Water
Analysis Batch: 304347

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	49.5		ug/L		99	74 - 123	1	30
Chlorobenzene	50.0	52.3		ug/L		105	79 - 120	2	30
1,2-Dichlorobenzene	50.0	51.6		ug/L		103	77 - 124	1	30
1,3-Dichlorobenzene	50.0	52.0		ug/L		104	79 - 123	1	30
1,4-Dichlorobenzene	50.0	54.7		ug/L		109	76 - 124	3	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	98		70 - 130
Dibromofluoromethane	98		70 - 130
Toluene-d8 (Surr)	97		70 - 130

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QC Sample Results

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 680-304391/8
Matrix: Water
Analysis Batch: 304391

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
Chlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,2-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,3-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1
1,4-Dichlorobenzene	1.0	U	1.0		ug/L			11/21/13 13:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene	91		70 - 130		11/21/13 13:38	1
Dibromofluoromethane	108		70 - 130		11/21/13 13:38	1
Toluene-d8 (Surr)	96		70 - 130		11/21/13 13:38	1

Lab Sample ID: LCS 680-304391/4
Matrix: Water
Analysis Batch: 304391

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	47.5		ug/L		95	74 - 123
Chlorobenzene	50.0	48.4		ug/L		97	79 - 120
1,2-Dichlorobenzene	50.0	43.3		ug/L		87	77 - 124
1,3-Dichlorobenzene	50.0	40.6		ug/L		81	79 - 123
1,4-Dichlorobenzene	50.0	41.8		ug/L		84	76 - 124

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene	87		70 - 130
Dibromofluoromethane	94		70 - 130
Toluene-d8 (Surr)	101		70 - 130

Lab Sample ID: LCSD 680-304391/5
Matrix: Water
Analysis Batch: 304391

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	50.0	47.8		ug/L		96	74 - 123	0	30
Chlorobenzene	50.0	49.6		ug/L		99	79 - 120	2	30
1,2-Dichlorobenzene	50.0	43.4		ug/L		87	77 - 124	0	30
1,3-Dichlorobenzene	50.0	41.2		ug/L		82	79 - 123	1	30
1,4-Dichlorobenzene	50.0	42.1		ug/L		84	76 - 124	1	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene	89		70 - 130
Dibromofluoromethane	97		70 - 130
Toluene-d8 (Surr)	102		70 - 130

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGG - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 680-304275/3
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/21/13 09:05	1
Ethylene	1.0	U	1.0		ug/L			11/21/13 09:05	1
Methane	0.58	U	0.58		ug/L			11/21/13 09:05	1
Methane (TCD)	390	U	390		ug/L			11/21/13 09:05	1

Lab Sample ID: LCS 680-304275/4
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	288	346		ug/L		120	75 - 125
Ethylene	269	326		ug/L		121	75 - 125
Methane	154	175		ug/L		113	75 - 125

Lab Sample ID: LCS 680-304275/8
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	1920	2270		ug/L		118	75 - 125

Lab Sample ID: LCSD 680-304275/5
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	288	298		ug/L		103	75 - 125	15	30
Ethylene	269	285		ug/L		106	75 - 125	13	30
Methane	154	150		ug/L		98	75 - 125	15	30

Lab Sample ID: LCSD 680-304275/9
Matrix: Water
Analysis Batch: 304275

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane (TCD)	1920	2080		ug/L		108	75 - 125	9	30

Lab Sample ID: MB 680-304475/8
Matrix: Water
Analysis Batch: 304475

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethane	1.1	U	1.1		ug/L			11/22/13 11:55	1
Ethylene	1.0	U	1.0		ug/L			11/22/13 11:55	1
Methane	0.58	U	0.58		ug/L			11/22/13 11:55	1
Methane (TCD)	390	U	390		ug/L			11/22/13 11:55	1

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: RSK-175 - Dissolved Gases (GC) (Continued)

Lab Sample ID: LCS 680-304475/4
Matrix: Water
Analysis Batch: 304475

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec. Limits
	Added	Result	Qualifier				
Ethane	288	306		ug/L		106	75 - 125
Ethylene	269	292		ug/L		108	75 - 125
Methane	154	155		ug/L		101	75 - 125

Lab Sample ID: LCS 680-304475/6
Matrix: Water
Analysis Batch: 304475

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec. Limits
	Added	Result	Qualifier				
Methane (TCD)	1920	2020		ug/L		105	75 - 125

Lab Sample ID: LCSD 680-304475/5
Matrix: Water
Analysis Batch: 304475

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	
	Added	Result	Qualifier					RPD	Limit
Ethane	288	297		ug/L		103	75 - 125	3	30
Ethylene	269	285		ug/L		106	75 - 125	2	30
Methane	154	151		ug/L		98	75 - 125	3	30

Lab Sample ID: LCSD 680-304475/7
Matrix: Water
Analysis Batch: 304475

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec. Limits	RPD	
	Added	Result	Qualifier					RPD	Limit
Methane (TCD)	1920	1990		ug/L		104	75 - 125	1	30

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 680-303845/1-A
Matrix: Water
Analysis Batch: 304612

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 303845

Analyte	MB MB		RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Iron	0.050	U	0.050		mg/L		11/18/13 15:46	11/22/13 07:52	1
Iron, Dissolved	0.050	U	0.050		mg/L		11/18/13 15:46	11/22/13 07:52	1
Manganese	0.010	U	0.010		mg/L		11/18/13 15:46	11/22/13 07:52	1
Manganese, Dissolved	0.010	U	0.010		mg/L		11/18/13 15:46	11/22/13 07:52	1

Lab Sample ID: LCS 680-303845/2-A
Matrix: Water
Analysis Batch: 304612

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 303845

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec. Limits
	Added	Result	Qualifier				
Iron	5.00	4.75		mg/L		95	75 - 125
Iron, Dissolved	5.00	4.75		mg/L		95	75 - 125
Manganese	0.500	0.488		mg/L		98	75 - 125
Manganese, Dissolved	0.500	0.488		mg/L		98	75 - 125

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: 680-96268-6 MS

Matrix: Water

Analysis Batch: 304612

Client Sample ID: CPA-D-DHU-F(0.2)-1113

Prep Type: Dissolved

Prep Batch: 303845

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	
	Result	Qualifier	Added	Result	Qualifier				Limits	
Iron, Dissolved	0.13		5.00	4.89		mg/L		95	75 - 125	
Manganese, Dissolved	0.34		0.500	0.817		mg/L		96	75 - 125	

Lab Sample ID: 680-96268-6 MSD

Matrix: Water

Analysis Batch: 304612

Client Sample ID: CPA-D-DHU-F(0.2)-1113

Prep Type: Dissolved

Prep Batch: 303845

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.		RPD	
	Result	Qualifier	Added	Result	Qualifier				Limits		RPD	Limit
Iron, Dissolved	0.13		5.00	4.91		mg/L		96	75 - 125		0	20
Manganese, Dissolved	0.34		0.500	0.814		mg/L		96	75 - 125		0	20

Method: 310.1 - Alkalinity

Lab Sample ID: MB 680-305471/3

Matrix: Water

Analysis Batch: 305471

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB	MB	RL	RL	Unit	D	Prepared	Analyzed		Dil Fac
	Result	Qualifier								
Alkalinity	5.0	U	5.0		mg/L			11/27/13 16:16		1
Carbon Dioxide, Free	5.0	U	5.0		mg/L			11/27/13 16:16		1

Lab Sample ID: LCS 680-305471/4

Matrix: Water

Analysis Batch: 305471

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike	Added	LCS	LCS	Unit	D	%Rec	%Rec.	
			Result	Qualifier				Limits	
Alkalinity	250		221		mg/L		88	80 - 120	

Lab Sample ID: LCSD 680-305471/22

Matrix: Water

Analysis Batch: 305471

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike	Added	LCSD	LCSD	Unit	D	%Rec	%Rec.		RPD	
			Result	Qualifier				Limits		RPD	Limit
Alkalinity	250		221		mg/L		88	80 - 120		0	30

Lab Sample ID: 680-96268-1 DU

Matrix: Water

Analysis Batch: 305471

Client Sample ID: CPA-D-SHU-1113

Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD	
	Result	Qualifier		Qualifier				Limit	
Alkalinity	5.0	U	5.0	U	mg/L			NC	30
Carbon Dioxide, Free	5.0	U	5.0	U	mg/L			NC	30

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: 325.2 - Chloride

Lab Sample ID: MB 680-304433/47
Matrix: Water
Analysis Batch: 304433

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.0	U	1.0		mg/L			11/21/13 11:05	1

Lab Sample ID: LCS 680-304433/28
Matrix: Water
Analysis Batch: 304433

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.8		mg/L		100	85 - 115

Method: 353.2 - Nitrogen, Nitrate-Nitrite

Lab Sample ID: MB 680-303622/13
Matrix: Water
Analysis Batch: 303622

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.050	U ^	0.050		mg/L			11/16/13 14:47	1

Lab Sample ID: LCS 680-303622/14
Matrix: Water
Analysis Batch: 303622

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.497	0.559	^ *	mg/L		113	90 - 110
Nitrate Nitrite as N	0.997	1.06		mg/L		107	90 - 110
Nitrite as N	0.500	0.503		mg/L		101	90 - 110

Lab Sample ID: 680-96268-5 MS
Matrix: Water
Analysis Batch: 303622

Client Sample ID: CPA-D-DHU-1113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.050	U ^ *	0.497	0.538	^	mg/L		108	90 - 110
Nitrate Nitrite as N	0.050		0.997	1.05		mg/L		104	90 - 110
Nitrite as N	0.050		0.500	0.509		mg/L		102	90 - 110

Lab Sample ID: 680-96268-5 MSD
Matrix: Water
Analysis Batch: 303622

Client Sample ID: CPA-D-DHU-1113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.050	U ^ *	0.497	0.536	^	mg/L		108	90 - 110	0	10
Nitrate Nitrite as N	0.050		0.997	1.05		mg/L		104	90 - 110	0	10
Nitrite as N	0.050		0.500	0.510		mg/L		102	90 - 110	0	10

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: 375.4 - Sulfate

Lab Sample ID: MB 680-304984/18
Matrix: Water
Analysis Batch: 304984

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.0	U	5.0		mg/L			11/25/13 11:17	1

Lab Sample ID: LCS 680-304984/17
Matrix: Water
Analysis Batch: 304984

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	20.0	20.1		mg/L		100	75 - 125

Lab Sample ID: 680-96268-3 MS
Matrix: Water
Analysis Batch: 304984

Client Sample ID: CPA-D-MHU-1113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	180		20.0	199	4	mg/L		93	75 - 125

Lab Sample ID: 680-96268-3 MSD
Matrix: Water
Analysis Batch: 304984

Client Sample ID: CPA-D-MHU-1113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	180		20.0	191	4	mg/L		50	75 - 125	4	30

Lab Sample ID: 680-96268-5 DU
Matrix: Water
Analysis Batch: 304984

Client Sample ID: CPA-D-DHU-1113
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Sulfate	20			18.2		mg/L		8	30

Method: 415.1 - DOC

Lab Sample ID: MB 680-306028/2-A
Matrix: Water
Analysis Batch: 306025

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			12/02/13 13:49	1

Lab Sample ID: LCS 680-306028/1-A
Matrix: Water
Analysis Batch: 306025

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	19.0		mg/L		95	80 - 120

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QC Sample Results

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Method: 415.1 - DOC (Continued)

Lab Sample ID: 680-96268-4 DU
Matrix: Water
Analysis Batch: 306025

Client Sample ID: CPA-D-MHU-F(0.2)-1113
Prep Type: Dissolved

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Dissolved Organic Carbon	42		40.6		mg/L		3	30

Lab Sample ID: MB 680-306244/2-A
Matrix: Water
Analysis Batch: 306228

Client Sample ID: Method Blank
Prep Type: Dissolved

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dissolved Organic Carbon	1.0	U	1.0		mg/L			12/04/13 19:46	1

Lab Sample ID: LCS 680-306244/1-A
Matrix: Water
Analysis Batch: 306228

Client Sample ID: Lab Control Sample
Prep Type: Dissolved

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Dissolved Organic Carbon	20.0	20.3		mg/L		102	80 - 120

Method: 415.1 - TOC

Lab Sample ID: MB 680-305596/2
Matrix: Water
Analysis Batch: 305596

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	1.0	U	1.0		mg/L			11/29/13 13:30	1

Lab Sample ID: LCS 680-305596/5
Matrix: Water
Analysis Batch: 305596

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	20.0	19.6		mg/L		98	80 - 120

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DEC 13 2013

QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

GC/MS VOA

Analysis Batch: 304112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-5	CPA-D-DHU-1113	Total/NA	Water	8260B	
680-96268-7	CPA-D-DHU-1113-AD	Total/NA	Water	8260B	
680-96268-8	4Q13 CPA Trip Blank #4	Total/NA	Water	8260B	
LCS 680-304112/3	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304112/4	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304112/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 304347

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-3	CPA-D-MHU-1113	Total/NA	Water	8260B	
LCS 680-304347/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304347/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304347/7	Method Blank	Total/NA	Water	8260B	

Analysis Batch: 304391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total/NA	Water	8260B	
LCS 680-304391/4	Lab Control Sample	Total/NA	Water	8260B	
LCSD 680-304391/5	Lab Control Sample Dup	Total/NA	Water	8260B	
MB 680-304391/8	Method Blank	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 304275

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total/NA	Water	RSK-175	
LCS 680-304275/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-304275/8	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-304275/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-304275/9	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-304275/3	Method Blank	Total/NA	Water	RSK-175	

Analysis Batch: 304475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-3	CPA-D-MHU-1113	Total/NA	Water	RSK-175	
680-96268-5	CPA-D-DHU-1113	Total/NA	Water	RSK-175	
LCS 680-304475/4	Lab Control Sample	Total/NA	Water	RSK-175	
LCS 680-304475/6	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 680-304475/5	Lab Control Sample Dup	Total/NA	Water	RSK-175	
LCSD 680-304475/7	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 680-304475/8	Method Blank	Total/NA	Water	RSK-175	

Metals

Prep Batch: 303845

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total Recoverable	Water	3005A	
680-96268-2	CPA-D-SHU-F(0.2)-1113	Dissolved	Water	3005A	
680-96268-3	CPA-D-MHU-1113	Total Recoverable	Water	3005A	
680-96268-4	CPA-D-MHU-F(0.2)-1113	Dissolved	Water	3005A	

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QC Association Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Metals (Continued)

Prep Batch: 303845 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-5	CPA-D-DHU-1113	Total Recoverable	Water	3005A	
680-96268-6	CPA-D-DHU-F(0.2)-1113	Dissolved	Water	3005A	
680-96268-6 MS	CPA-D-DHU-F(0.2)-1113	Dissolved	Water	3005A	
680-96268-6 MSD	CPA-D-DHU-F(0.2)-1113	Dissolved	Water	3005A	
LCS 680-303845/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 680-303845/1-A	Method Blank	Total Recoverable	Water	3005A	

Analysis Batch: 304612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total Recoverable	Water	6010C	303845
680-96268-2	CPA-D-SHU-F(0.2)-1113	Dissolved	Water	6010C	303845
680-96268-3	CPA-D-MHU-1113	Total Recoverable	Water	6010C	303845
680-96268-4	CPA-D-MHU-F(0.2)-1113	Dissolved	Water	6010C	303845
680-96268-5	CPA-D-DHU-1113	Total Recoverable	Water	6010C	303845
680-96268-6	CPA-D-DHU-F(0.2)-1113	Dissolved	Water	6010C	303845
680-96268-6 MS	CPA-D-DHU-F(0.2)-1113	Dissolved	Water	6010C	303845
680-96268-6 MSD	CPA-D-DHU-F(0.2)-1113	Dissolved	Water	6010C	303845
LCS 680-303845/2-A	Lab Control Sample	Total Recoverable	Water	6010C	303845
MB 680-303845/1-A	Method Blank	Total Recoverable	Water	6010C	303845

General Chemistry

Analysis Batch: 303622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total/NA	Water	353.2	
680-96268-3	CPA-D-MHU-1113	Total/NA	Water	353.2	
680-96268-5	CPA-D-DHU-1113	Total/NA	Water	353.2	
680-96268-5 MS	CPA-D-DHU-1113	Total/NA	Water	353.2	
680-96268-5 MSD	CPA-D-DHU-1113	Total/NA	Water	353.2	
LCS 680-303622/14	Lab Control Sample	Total/NA	Water	353.2	
MB 680-303622/13	Method Blank	Total/NA	Water	353.2	


Analysis Batch: 304433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total/NA	Water	325.2	
680-96268-3	CPA-D-MHU-1113	Total/NA	Water	325.2	
680-96268-5	CPA-D-DHU-1113	Total/NA	Water	325.2	
LCS 680-304433/28	Lab Control Sample	Total/NA	Water	325.2	
MB 680-304433/47	Method Blank	Total/NA	Water	325.2	

Analysis Batch: 304984

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total/NA	Water	375.4	
680-96268-3	CPA-D-MHU-1113	Total/NA	Water	375.4	
680-96268-3 MS	CPA-D-MHU-1113	Total/NA	Water	375.4	
680-96268-3 MSD	CPA-D-MHU-1113	Total/NA	Water	375.4	
680-96268-5	CPA-D-DHU-1113	Total/NA	Water	375.4	
680-96268-5 DU	CPA-D-DHU-1113	Total/NA	Water	375.4	
LCS 680-304984/17	Lab Control Sample	Total/NA	Water	375.4	
MB 680-304984/18	Method Blank	Total/NA	Water	375.4	

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QC Association Summary

Client: Solutia Inc.
Project/Site: W GK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

General Chemistry (Continued)

Analysis Batch: 305471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total/NA	Water	310.1	
680-96268-1 DU	CPA-D-SHU-1113	Total/NA	Water	310.1	
680-96268-3	CPA-D-MHU-1113	Total/NA	Water	310.1	
680-96268-5	CPA-D-DHU-1113	Total/NA	Water	310.1	
LCS 680-305471/4	Lab Control Sample	Total/NA	Water	310.1	
LCSD 680-305471/22	Lab Control Sample Dup	Total/NA	Water	310.1	
MB 680-305471/3	Method Blank	Total/NA	Water	310.1	

Analysis Batch: 305596

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-1	CPA-D-SHU-1113	Total/NA	Water	415.1	
680-96268-3	CPA-D-MHU-1113	Total/NA	Water	415.1	
680-96268-5	CPA-D-DHU-1113	Total/NA	Water	415.1	
LCS 680-305596/5	Lab Control Sample	Total/NA	Water	415.1	
MB 680-305596/2	Method Blank	Total/NA	Water	415.1	

Analysis Batch: 306025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-4	CPA-D-MHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96268-4 DU	CPA-D-MHU-F(0.2)-1113	Dissolved	Water	415.1	
680-96268-6	CPA-D-DHU-F(0.2)-1113	Dissolved	Water	415.1	
LCS 680-306028/1-A	Lab Control Sample	Dissolved	Water	415.1	306028
MB 680-306028/2-A	Method Blank	Dissolved	Water	415.1	306028

Filtration Batch: 306028

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-306028/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
MB 680-306028/2-A	Method Blank	Dissolved	Water	FILTRATION	

Analysis Batch: 306228

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
680-96268-2	CPA-D-SHU-F(0.2)-1113	Dissolved	Water	415.1	
LCS 680-306244/1-A	Lab Control Sample	Dissolved	Water	415.1	306244
MB 680-306244/2-A	Method Blank	Dissolved	Water	415.1	306244

Filtration Batch: 306244

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 680-306244/1-A	Lab Control Sample	Dissolved	Water	FILTRATION	
MB 680-306244/2-A	Method Blank	Dissolved	Water	FILTRATION	

TestAmerica Savannah

DEC 13 2013

Lab Chronicle

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-SHU-1113

Lab Sample ID: 680-96268-1

Date Collected: 11/15/13 12:00

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2000	304391	11/21/13 14:08	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	304275	11/21/13 11:35	TAR	TAL SAV
Total Recoverable	Prep	3005A			303845	11/18/13 15:46	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	304612	11/22/13 08:51	BCB	TAL SAV
Total/NA	Analysis	353.2		10	303622	11/16/13 14:54	CRW	TAL SAV
Total/NA	Analysis	325.2		5	304433	11/21/13 10:51	JME	TAL SAV
Total/NA	Analysis	375.4		100	304984	11/25/13 13:21	JME	TAL SAV
Total/NA	Analysis	310.1		1	305471	11/27/13 17:15	LBH	TAL SAV
Total/NA	Analysis	415.1		5	305596	11/29/13 19:03	CMP	TAL SAV

Client Sample ID: CPA-D-SHU-F(0.2)-1113

Lab Sample ID: 680-96268-2

Date Collected: 11/15/13 12:00

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303845	11/18/13 15:46	DAS	TAL SAV
Dissolved	Analysis	6010C		1	304612	11/22/13 09:05	BCB	TAL SAV
Dissolved	Analysis	415.1		5	306228	12/04/13 20:47	CMP	TAL SAV

Client Sample ID: CPA-D-MHU-1113

Lab Sample ID: 680-96268-3

Date Collected: 11/15/13 12:50

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		500	304347	11/21/13 20:23	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	304475	11/22/13 13:40	TAR	TAL SAV
Total Recoverable	Prep	3005A			303845	11/18/13 15:46	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	304612	11/22/13 09:10	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303622	11/16/13 14:55	CRW	TAL SAV
Total/NA	Analysis	325.2		5	304433	11/21/13 10:51	JME	TAL SAV
Total/NA	Analysis	375.4		10	304984	11/25/13 12:23	JME	TAL SAV
Total/NA	Analysis	310.1		1	305471	11/27/13 17:46	LBH	TAL SAV
Total/NA	Analysis	415.1		1	305596	11/29/13 19:17	CMP	TAL SAV

Client Sample ID: CPA-D-MHU-F(0.2)-1113

Lab Sample ID: 680-96268-4

Date Collected: 11/15/13 12:50

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303845	11/18/13 15:46	DAS	TAL SAV
Dissolved	Analysis	6010C		1	304612	11/22/13 09:24	BCB	TAL SAV

TestAmerica Savannah

DEC 13 2013

Lab Chronicle

Client: Solutia Inc.
Project/Site: WGG - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Client Sample ID: CPA-D-MHU-F(0.2)-1113

Lab Sample ID: 680-96268-4

Date Collected: 11/15/13 12:50

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	415.1		1	306025	12/02/13 16:08	CMP	TAL SAV

Client Sample ID: CPA-D-DHU-1113

Lab Sample ID: 680-96268-5

Date Collected: 11/15/13 13:45

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	304112	11/20/13 17:02	JD1	TAL SAV
Total/NA	Analysis	RSK-175		1	304475	11/22/13 13:53	TAR	TAL SAV
Total Recoverable	Prep	3005A			303845	11/18/13 15:46	DAS	TAL SAV
Total Recoverable	Analysis	6010C		1	304612	11/22/13 09:28	BCB	TAL SAV
Total/NA	Analysis	353.2		1	303622	11/16/13 14:49	CRW	TAL SAV
Total/NA	Analysis	325.2		1	304433	11/21/13 10:03	JME	TAL SAV
Total/NA	Analysis	375.4		1	304984	11/25/13 11:19	JME	TAL SAV
Total/NA	Analysis	310.1		1	305471	11/27/13 17:32	LBH	TAL SAV
Total/NA	Analysis	415.1		1	305596	11/29/13 20:02	CMP	TAL SAV

Client Sample ID: CPA-D-DHU-F(0.2)-1113

Lab Sample ID: 680-96268-6

Date Collected: 11/15/13 13:45

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			303845	11/18/13 15:46	DAS	TAL SAV
Dissolved	Analysis	6010C		1	304612	11/22/13 09:33	BCB	TAL SAV
Dissolved	Analysis	415.1		1	306025	12/02/13 16:33	CMP	TAL SAV

Client Sample ID: CPA-D-DHU-1113-AD

Lab Sample ID: 680-96268-7

Date Collected: 11/15/13 13:45

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		250	304112	11/20/13 17:25	JD1	TAL SAV

Client Sample ID: 4Q13 CPA Trip Blank #4

Lab Sample ID: 680-96268-8

Date Collected: 11/15/13 00:00

Matrix: Water

Date Received: 11/16/13 08:57

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	304112	11/20/13 11:30	JD1	TAL SAV

Laboratory References:

TAL SAV = TestAmerica Savannah, 5102 LaRoche Avenue, Savannah, GA 31404, TEL (912)354-7858

TestAmerica Savannah

DEC 13 2013

Savannah

5102 LaRoche Avenue

Savannah, GA 31404

phone 912.354.7858 fax 912.352.0165

TestAmerica
 THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Chain of Custody Record

Client Contact		Project Manager: Bob Billman		Site Contact: Michael Corbett		Carrier: FedEx		COC No: 1 of 1 COCs	
URS Corporation		Tel/Fax: (314) 743-4108		Lab Contact: Michele Kersey		Job No. 21562962.00004		SDG No.	
1001 Highlands Plaza Drive West, Suite 300		Analysis Turnaround Time		Disolved Fe/Mn by 6010B		Disolved Fe/Mn by 6010B		Sample Specific Notes:	
St. Louis, MO 63110		Calendar (C) or Work Days (W)		TOC by 415.1		Nitrate by 353.2			
(314) 429-0700 Phone		TAT if different from Below: Standard		Disolved Gases by RSK 175		Chloride by 325.2/Sulfate by 375.4			
(314) 429-0462 FAX		<input type="checkbox"/> 2 weeks		Alk/CO2 by 310.1		Total Fe/Mn by 6010B			
Project Name: 4Q13 CPA GW Sampling		<input type="checkbox"/> 1 week		VOCs by 8260					
Site: Solutia WG Krummrich Facility		<input type="checkbox"/> 2 days							
PO#		<input type="checkbox"/> 1 day							

Sample Identification	Sample Date	Sample Time	Sample Type	Matrix	# of Cont.
CPA-D-SHU-1113 ✓	11/15/13	1200	G	Water	12
CPA-D-SHU-F(0.2)-1113 ✓	1200	G	Water	2	X
CPA-D-MHU-1113 ✓	1250	G	Water	12	
CPA-D-MHU-F(0.2)-1113 ✓	1250	G	Water	2	X
CPA-D-DHU-1113 ✓	1345	G	Water	12	
CPA-D-DHU-F(0.2)-1113 ✓	1345	G	Water	2	X
CPA-D-DHU-1113 ✓	11/15/13	1345	G	Water	3
CPA-D-DHU-1113-AD ✓					
4Q13 CPA Trip Blank #4 ✓				Water	2

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4= HNO3, 5= NaOH, 6= Other

Possible Hazard Identification

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Volatile ☐ Brown

Special Instructions/QC Requirements & Comments:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return To Client ☒ Disposal By Lab ☐ Archive For Months

Relinquished by: <i>[Signature]</i>	Company: URS	Date/Time: 11/15/13 1330	Received by: <i>[Signature]</i>	Company: <i>[Signature]</i>	Date/Time: 11/16/13 0857
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:

DEC 19 2013

1.8-2
680-96268

13

Login Sample Receipt Checklist

Client: Solutia Inc.

Job Number: 680-96268-1

SDG Number: KPS105

Login Number: 96268

List Source: TestAmerica Savannah

List Number: 1

Creator: Conner, Keaton

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Certification Summary

Client: Solutia Inc.
Project/Site: WGK - CPA GW 4Q13

TestAmerica Job ID: 680-96268-1
SDG: KPS105

Laboratory: TestAmerica Savannah

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
	AFCEE		SAVLAB	
A2LA	DoD ELAP		399.01	02-28-15
A2LA	ISO/IEC 17025		399.01	02-28-15
Alabama	State Program	4	41450	06-30-14
Arkansas DEQ	State Program	6	88-0692	02-01-14
California	NELAP	9	3217CA	07-31-14
Colorado	State Program	8	N/A	12-31-13 *
Connecticut	State Program	1	PH-0161	03-31-15
Florida	NELAP	4	E87052	06-30-14
GA Dept. of Agriculture	State Program	4	N/A	12-31-13 *
Georgia	State Program	4	N/A	06-30-14
Georgia	State Program	4	803	06-30-14
Guam	State Program	9	09-005r	06-17-14
Hawaii	State Program	9	N/A	06-30-14
Illinois	NELAP	5	200022	11-30-13 *
Indiana	State Program	5	N/A	06-30-14
Iowa	State Program	7	353	07-01-15
Kentucky	State Program	4	90084	12-31-13 *
Kentucky (UST)	State Program	4	18	06-30-14
Louisiana	NELAP	6	30690	06-30-14
Maine	State Program	1	GA00006	08-16-14
Maryland	State Program	3	250	12-31-13 *
Massachusetts	State Program	1	M-GA006	06-30-14
Michigan	State Program	5	9925	06-30-14
Mississippi	State Program	4	N/A	06-30-14
Montana	State Program	8	CERT0081	01-01-14 *
Nebraska	State Program	7	TestAmerica-Savannah	06-30-14
New Jersey	NELAP	2	GA769	06-30-14
New Mexico	State Program	6	N/A	06-30-14
New York	NELAP	2	10842	04-01-14
North Carolina DENR	State Program	4	269	12-31-13 *
North Carolina DHHS	State Program	4	13701	07-31-14
Oklahoma	State Program	6	9984	08-31-14
Pennsylvania	NELAP	3	68-00474	06-30-14
Puerto Rico	State Program	2	GA00006	01-01-14 *
South Carolina	State Program	4	98001	06-30-14
Tennessee	State Program	4	TN02961	06-30-14
Texas	NELAP	6	T104704185-08-TX	11-30-14
USDA	Federal		SAV 3-04	04-07-14
Virginia	NELAP	3	460161	06-14-14
Washington	State Program	10	C1794	06-10-14
West Virginia	State Program	3	9950C	12-31-13 *
West Virginia DEP	State Program	3	94	06-30-14
Wisconsin	State Program	5	999819810	08-31-14
Wyoming	State Program	8	8TMS-L	06-30-14

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Savannah

DEC 13 2013

Appendix E

Microbial Insights Data Package



10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Client: Nathan McNurlen
URS Corp
1001 Highlands Plaza Dr. West
Suite 300
St. Louis, MO 63110

Phone:

Fax:

Identifier: 099KJ

Date Rec: 10/31/2013

Report Date: 12/19/2013

Client Project #: 21562838.0009

Client Project Name: Solutia WGK 4Q13 GW

Purchase Order #: 294668

Analysis Requested: PLFA, Stable Isotope Probing

Reviewed By:

A handwritten signature in black ink, reading 'Eric Hirschman Morris'.

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

MICROBIAL INSIGHTS, INC.

10515 Research Dr., Knoxville, TN 37932
Tel. (865) 573-8188 Fax. (865) 573-8133

PLFA

Client: URS Corp
Project: Solutia WGK 4Q13 GW

MI Project Number: 099KJ
Date Received: 10/31/2013

Sample Information

Sample Name:	CPA-A-DHU-111 3	CPA-B-DHU-111 3	CPA-C-DHU- 1113	CPA-D-DHU-1 113
Sample Date:	10/30/2013	10/30/2013	10/30/2013	10/30/2013
Sample Matrix:	Adv. Bio-Trap	Adv. Bio-Trap	Adv. Bio-Trap	Adv. Bio-Trap
Analyst:	BJ	BJ	BJ	BJ

Biomass Concentrations

	8.42E+04	1.67E+04	7.50E+04	1.66E+05
Total Biomass (cells/bead)				

Community Structure (% total PLFA)

	0.00	0.00	17.97	17.02
Firmicutes (TerBrSats)				
Proteobacteria (Monos)	68.11	60.55	51.32	68.12
Anaerobic metal reducers (BrMonos)	0.00	0.00	0.00	0.00
SRB/Actinomycetes (MidBrSats)	0.00	0.00	0.00	0.00
General (Nsats)	31.89	39.45	30.72	14.85
Eukaryotes (polyenoics)	0.00	0.00	0.00	0.00

Physiological Status (Proteobacteria only)

	0.00	1.82	0.78	0.59
Slowed Growth				
Decreased Permeability	0.00	0.00	0.00	0.00

Legend:

NA = Not Analyzed NS = Not Sampled

Client: URS Corp
Project: Solutia WGK 4Q13 GW

MI Project Number: 099KJ
Date Received: 10/31/2013

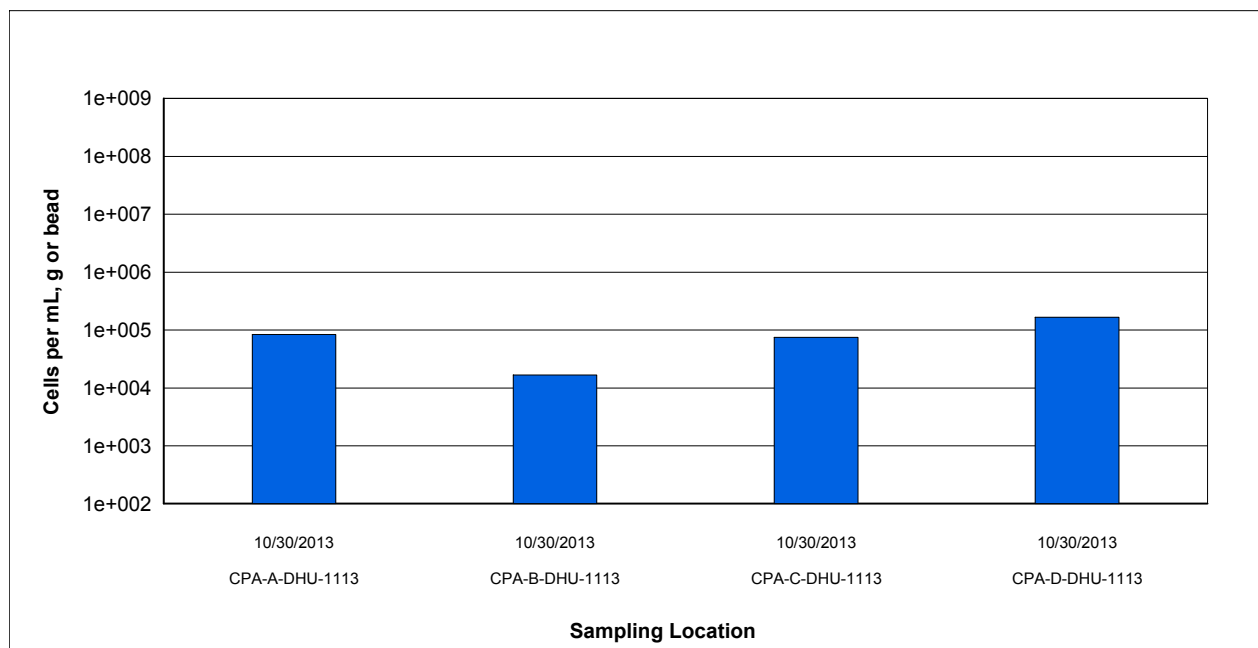


Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass

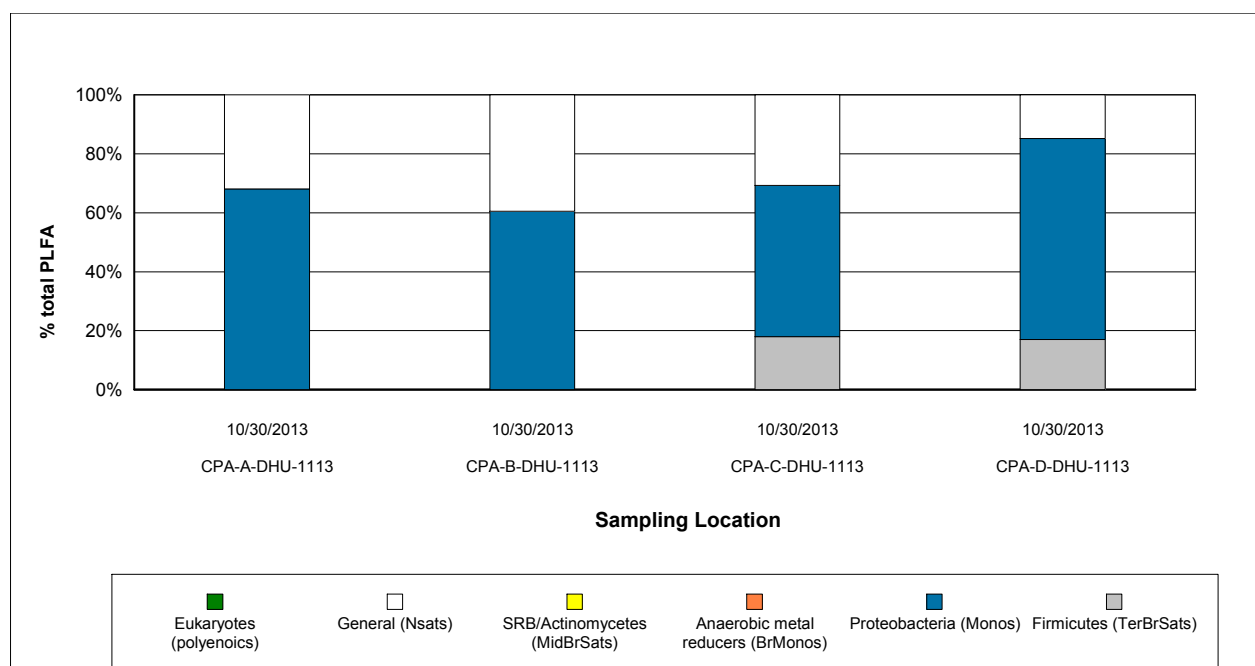


Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis.



10515 Research Drive
Knoxville, TN 37932
Phone: (865) 573-8188
Fax: (865) 573-8133
Email: info@microbe.com

Identifier: 099KJ

Date Rec: 10/31/2013

Report Date: 12/19/2013

Client Project #: 21562838.0009

Client Project Name: Solutia WGK 4Q13 GW

Purchase Order #: 294668

Comments: Please note that the total biomass result for sample CPA-B-DHU-1113 fell between the quantitation limit and the method detection limit for the PLFA analysis.

SITE LOGIC Report

Stable Isotope Probing (SIP) Study

Contact: Nathan McNurlen
Address: URS Corporation – St. Louis MO
1001 Highlands Plaza Drive West
Suite 300
St. Louis, MO 63110

Phone: (314) 429-0100

Email: Nathan.mcnurlen@urs.com

MI Identifier: 099KJ

Report Date: 12/19/2013

Project: Solutia WGK 4Q13 GW; #21562838.0009

Comments:

NOTICE: This report is intended only for the addressee shown above and may contain confidential or privileged information. If the recipient of this material is not the intended recipient or if you have received this in error, please notify Microbial Insights, Inc. immediately. The data and other information in this report represent only the sample(s) analyzed and are rendered upon condition that it is not to be reproduced without approval from Microbial Insights, Inc. Thank you for your cooperation.

Executive Summary

A Stable Isotope Probing (SIP) study was performed to determine whether biodegradation of chlorobenzene is occurring under existing site conditions. Bio-Trap® samplers baited with ^{13}C labeled chlorobenzene were deployed in monitoring wells CPA-A-DHU, CPA-B-DHU, CPA-C-DHU, and CPA-D-DHU. Following a deployment period, the Bio-Traps were recovered to quantify ^{13}C incorporation into biomass and dissolved inorganic carbon (DIC). A complete summary of the SIP and PLFA results is provided in Tables 1 and 2.

Stable Isotope Probing (SIP)

- Incorporation of ^{13}C into the microbial biomass and DIC in well CPA-A-DHU conclusively demonstrated that chlorobenzene biodegradation and mineralization occurred under existing site conditions at this sample site.
- Additionally, incorporation of ^{13}C into the microbial biomass in well CPA-C-DHU conclusively demonstrated that chlorobenzene biodegradation occurred under existing site conditions at this sample site.
- While the average PLFA $\delta^{13}\text{C}$ values in wells CPA-A-DHU and CPA-C-DHU (45‰, and 19‰, respectively) fell within the lower range, ^{13}C chlorobenzene was nevertheless incorporated into the biomass.
- Similarly, the average DIC $\delta^{13}\text{C}$ value from well CPA-A-DHU (13‰) was low, but demonstrated that mineralization did occur.
- The PLFA community structure for all wells was dominated by monounsaturates (Proteobacteria indicators) and normal saturates.
- Total PLFA biomass concentrations in wells CPA-A-DHU, CPA-C-DHU, and CPA-D-DHU ($8.42\text{E}+04$ cells/bd, $7.50\text{E}+04$ cells/bd, and $1.66\text{E}+05$ cells/bd, respectively) were moderate.
- The total PLFA biomass concentration in well CPA-B-DHU ($1.67\text{E}+04$ cells/bd) fell between the quantitation limit and the method detection limit for the PLFA analysis.
- A relatively large percentage (~20%) of the PLFA community structure in wells CPA-C-DHU and CPA-D-DHU were terminally branched saturates, indicators of Firmicutes (anaerobic fermenting bacteria).

Overview of Approach

Stable Isotope Probing (SIP)

Stable isotope probing (SIP) is an innovative method to track the environmental fate of a “labeled” contaminant of concern to unambiguously demonstrate biodegradation. Two stable carbon isotopes exist in nature – carbon 12 (^{12}C) which accounts for 99% of carbon and carbon 13 (^{13}C) which is considerably less abundant (~1%). With the SIP method, the Bio-Trap® sampler is baited with a specially synthesized form of the contaminant containing ^{13}C labeled carbon. Since ^{13}C is rare, the labeled compound can be readily differentiated from the contaminants present at the site. Following deployment, the Bio-Trap® is recovered and three approaches are used to conclusively demonstrate biodegradation of the contaminant of concern.

- The loss of the labeled compound provides an estimate of the degradation rate (% loss of ^{13}C).
- Quantification of ^{13}C enriched phospholipid fatty acids (PLFA) indicates incorporation into microbial biomass.
- Quantification of ^{13}C enriched dissolved inorganic carbon (DIC) indicates contaminant mineralization.

Phospholipid Fatty Acids (PLFA)

PLFA are a primary component of the membrane of all living cells including bacteria. PLFA decomposes rapidly upon cell death (1, 2), so the total amount of PLFA present in a sample is indicative of the viable biomass. When combined with stable isotope probing (SIP), incorporation of ^{13}C into PLFA is a conclusive indicator of biodegradation.

Some organisms produce “signature” types of PLFA allowing quantification of important microbial functional groups (e.g. iron reducers, sulfate reducers, or fermenters). The relative proportions of the groups of PLFA provide a “fingerprint” of the microbial community. In addition, *Proteobacteria* modify specific PLFA during periods of slow growth or in response to environmental stress providing an index of their health and metabolic activity.

Results

Table 1. Summary of the SIP results obtained from the SIP Bio-Trap® Units. Interpretation guidelines and definitions are found later in the document.

Sample Name	CPA-A-DHU-1113	CPA-B-DHU-1113	CPA-C-DHU-1113	CPA-D-DHU-1113
¹³C Contaminant Loss				
¹³ C Chlorobenzene Pre-deployment (µg/bead)	126 ± 11	126 ± 11	126 ± 11	126 ± 11
¹³ C Chlorobenzene Post-deployment (µg/bead)	73 ± 4	80 ± 2	80 ± 11	82 ± 12
Biomass & ¹³C Incorporation				
Total Biomass (Cells/bead)	8.42E+04	1.67E+04	7.50E+04	1.66E+05
¹³ C Enriched Biomass (Cells/bead)	1.58E+02	ND	1.93E+02	ND
Average PLFA Del (‰)	45	ND	19	ND
Maximum PLFA Del (‰)	45	ND	34	ND
¹³C Mineralization				
DIC Del (‰)	13	-3.7	-6.2	-2.9
% ¹³ C	1.12	1.10	1.10	1.10
Community Structure (% total PLFA)				
Firmicutes (TerBrSats)	0.0	0.0	18.0	17.0
Proteobacteria (Monos)	68.1	60.6	51.3	68.1
Anaerobic metal reducers (BrMonos)	0.0	0.0	0.0	0.0
Actinomycetes (MidBrSats)	0.0	0.0	0.0	0.0
General (Nsats)	31.9	39.5	30.7	14.9
Eukaryotes (Polyenoics)	0.0	0.0	0.0	0.0
Physiological Status (Proteobacteria only)				
Slowed Growth	0.00	1.82	0.78	0.59
Decreased Permeability	0.00	0.00	0.00	0.00

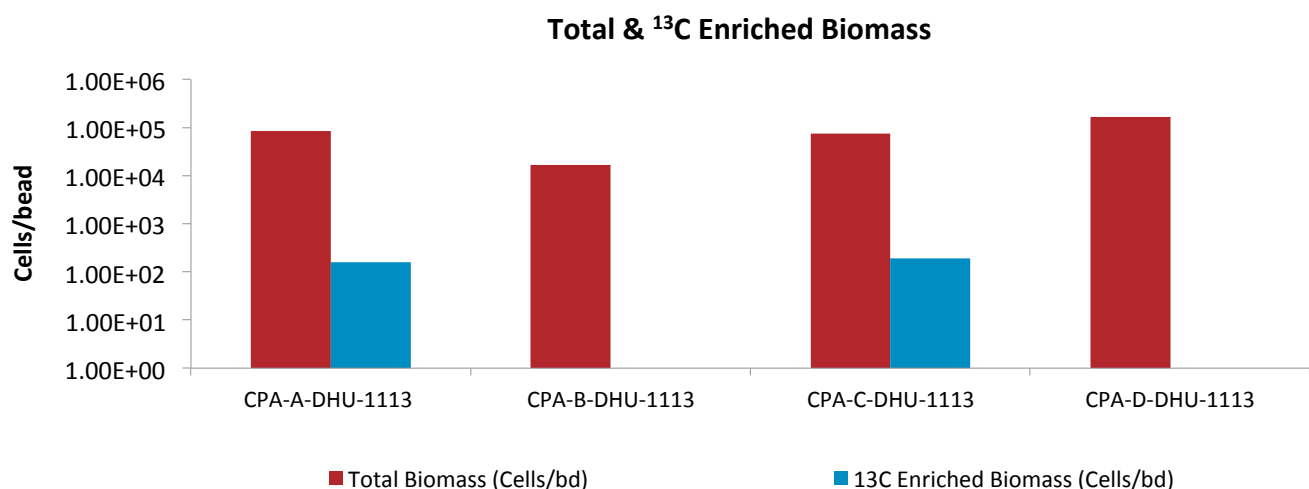


Figure 1. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

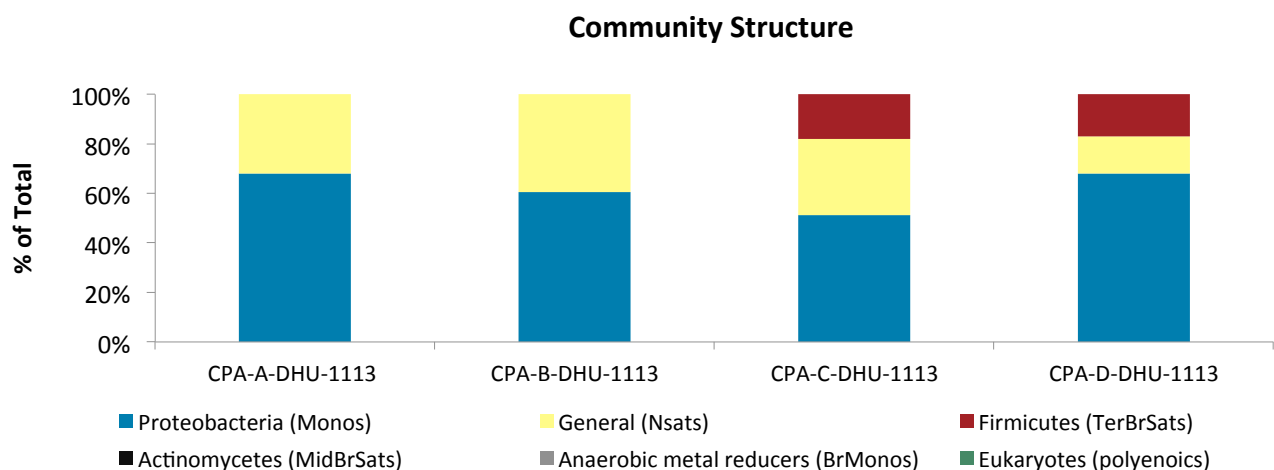


Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

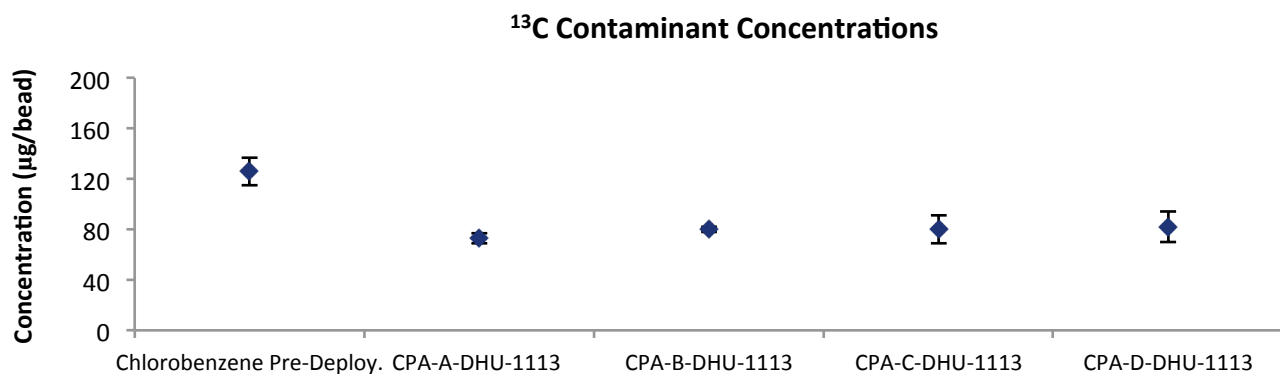


Figure 3. Comparison of Pre-deployment concentrations loaded on Bio-Sep beads to the concentrations detected after incubation.

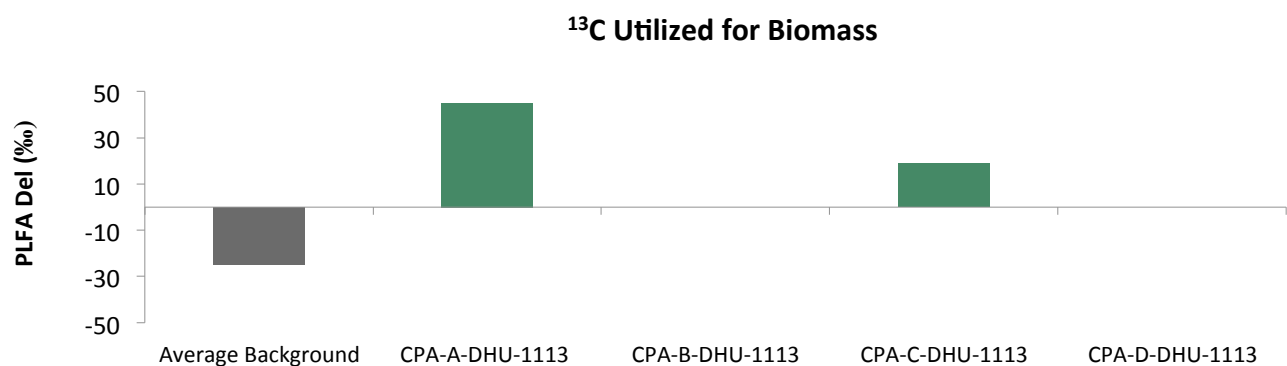


Figure 4. Comparison of the average Del value obtained from PLFA biomarkers from each Bio-Trap[®] unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

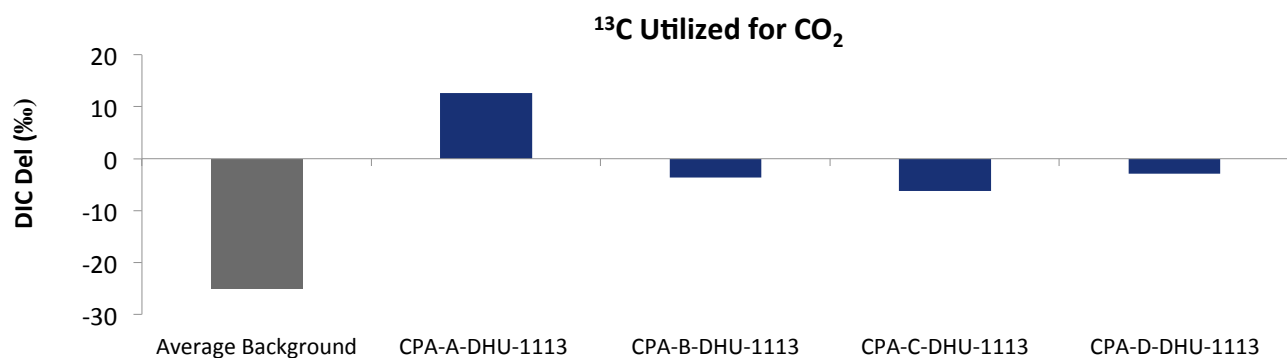


Figure 5. Comparison of the Del value obtained from DIC from each Bio-Trap[®] unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

Interpretation

Interpretation of the results of the SIP Bio-Trap® study must be performed with due consideration of site conditions, site activities, and the desired treatment mechanism. The following discussion describes interpretation of results in general terms and is meant to serve as a guide.

Contaminant Concentration: Bio-Traps® are baited with a ^{13}C labeled contaminant of concern and a pre-deployment concentration is determined prior to shipping. Following deployment, Bio-Traps® are recovered for analysis including measurement of the concentration of the ^{13}C labeled contaminant remaining. Pre- and post-deployment concentrations are used to calculate percent loss.

Biomass Concentrations: PLFA analysis is one of the most reliable and accurate methods available for the determination of viable (live) biomass. Phospholipids break down rapidly upon cell death, so biomass calculations based on PLFA content do not include “fossil” lipids from dead cells. Total biomass (cells/bead) is calculated from total PLFA using a conversion factor of 20,000 cells/pmol of PLFA. When making comparisons between wells, treatments, or over time, differences of one order of magnitude or more are considered significant.

Total Biomass		
Low	Moderate	High
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

For SIP studies, the ^{13}C enriched PLFA is also determined to conclusively demonstrate contaminant biodegradation and quantify incorporation into biomass as a result of the ^{13}C being used for cellular growth. The % ^{13}C incorporation (^{13}C enriched biomass/total biomass) is also provided in the data summary table, but the value must be interpreted carefully especially when comparing wells or treatments. Typically, biodegradation of a contaminant of concern is performed by a small subset of the total microbial community. For Bio-Traps® with large total biomass, the % ^{13}C incorporation value could be low despite significant ^{13}C labeled biomass and loss of the compound. The % ^{13}C incorporation should be viewed in light of total biomass, percent loss, and dissolved inorganic carbon (DIC) results.

^{13}C enrichment data is often reported as a δ value. The δ value is the difference between the isotopic ratio ($^{13}\text{C}/^{12}\text{C}$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand, denoted ‰).

R_{std} is the naturally occurring isotopic ratio and is approximately 0.011180 (roughly 1% of naturally occurring carbon is ^{13}C). The isotopic ratio, R_x , of PLFA is typically less than the R_{std} under natural conditions, resulting in a δ value between -20 and -30‰. For a SIP Bio-Trap® study, biodegradation and incorporation of the ^{13}C labeled compound into PLFA results in a larger $^{13}\text{C}/^{12}\text{C}$ ratio (R_x) and thus δ values greater than under natural conditions. Typical PLFA δ values are provided below.

PLFA δ (‰)		
Low	Moderate	High
0 to 100	100 to 1,000	>1,000

Dissolved Inorganic Carbon (DIC): Often, bacteria can utilize the ^{13}C labeled compound as both a carbon and energy source. The ^{13}C portion used as a carbon source for growth can be incorporated into PLFA as discussed above, while the ^{13}C used for energy is oxidized to $^{13}\text{CO}_2$ (mineralized).

^{13}C enriched CO_2 data is often reported as a del value as described above for PLFA. Under natural conditions, the R_x of CO_2 is approximately the same as R_{std} (0.01118 or about 1.1% ^{13}C). For an SIP Bio-Trap® study, mineralization of the ^{13}C labeled contaminant of concern would lead to a greater value of R_x (increased $^{13}\text{CO}_2$ production) and thus a positive del value. As with PLFA, del values between 0 and 100‰ are considered low, values between 100 and 1,000‰ are considered moderate, and values greater than 1,000‰ are considered high. Thus DIC % ^{13}C are considered low if the value is less than 1.23%, moderate if between 1.23 and 2.24%, and high if greater than 2.24%.

Dissolved Inorganic Carbon (DIC) Del and % ^{13}C		
Low	Moderate	High
0 to 100	100 to 1,000	>1,000
1.11 to 1.23%	1.23 to 2.24%	>2.24%

Community Structure (% total PLFA): Community structure data is presented as a percentage of PLFA structural groups normalized to the total PLFA biomass. The relative proportions of the PLFA structural groups provide a “fingerprint” of the types of microbial groups (e.g. anaerobes, sulfate reducers, etc.) present and therefore offer insight into the dominant metabolic processes occurring at the sample location. Thorough interpretation of the PLFA structural groups depends in part on an understanding of site conditions and the desired microbial biodegradation pathways. For example, an increase in mid chain branched saturated PLFA (MidBrSats), indicative of sulfate reducing bacteria (SRB) and *Actinomycetes*, may be desirable at a site where anaerobic BTEX biodegradation is the treatment mechanism, but would not be desirable for a corrective action promoting aerobic BTEX or MTBE biodegradation. The following table provides a brief summary of each PLFA structural group and its potential relevance to bioremediation.

Table 2. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly <i>Clostridia</i> / <i>Bacteriodes</i> -like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in higher plants, and animals.	Eukaryotic scavengers will often prey on contaminant utilizing bacteria.

Physiological Status (*Proteobacteria*): Some *Proteobacteria* modify specific PLFA as a strategy to adapt to stressful environmental conditions (3, 4). For example, *cis* monounsaturated fatty acids may be modified to cyclopropyl fatty acids during periods of slowed growth or modified to *trans* monounsaturated fatty acids to decrease membrane permeability in response to environmental stress. The ratio of product to substrate fatty acid thus provides an index of their health and metabolic activity. In general, status ratios greater than 0.25 indicate a response to unfavorable environmental conditions.

Glossary

Del: A Del value is the difference between the isotopic ratio ($^{13}\text{C}/^{12}\text{C}$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand denoted ‰).

$$\text{Del} = (R_x - R_{\text{std}}) / R_{\text{std}} \times 1000$$

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Project No.:

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Name: _____
Company: _____
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Purchase Order No. _____
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☒ No Additional Samples

Please see sampling protocol for instructions

Report Type: ☒ Standard (default) ☐ Comprehensive (15% surcharge) ☐ Historical (30% surcharge)

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In order for analysis to be completed correctly, it is vital that chain of custody is filled out correctly & that all relative information is provided. Failure to provide sufficient and/or correct information regarding reporting, invoicing & analyses requested information may result in delays for which MI will not be liable. * additional cost and sample preservation are associated with RNA samples.